THE

CYCLOPAEDIA;

or,

Universal Dictionary

of

ARTS, SCIENCES, AND LITERATURE.

VOL. IV.
BATTERY. 

Battery Point, in Geography, lies on the north or starboard shore of the channel of Cork, in Ireland.

Battery, formed of batter, to beat or strike, in the Military Art, denotes an eminence cast up, on which to plant artillery, that it may play to better advantage. It consists of an encausale, parapet, or breast-work, about eight feet high, and eighteen or twenty thick. The platform of a battery is laid with planks, that the wheels of the carriages may not sink; and it is made sloping towards the parapet, that the guns may not recoil much, and that they may be more easily drawn back. See Plate II. Porif. fig. 21. fig. 2, and Plate VII. fig. 38.

In all batteries, the open spaces left to put the muzzles of the great guns out at, are called embrasures; and the spaces between the embrasures, merlons. The guns are generally from twelve to sixteen feet distant from one another, that the parapet may be strong, and the gunners may have room to work.

There are also batteries of mortars, the fame with those of canons, except that they have no embrasures; the flaps being fired over the parapet, commonly at an angle of 45° elevation; and the slope of the breast-work is made inwards, contrary to that of other parapets, having their platforms about six feet square and eight feet aunder.

The battery of a camp is usually surrounded with a trench and pales at the bottom, as also with a parapet on the top, having as many holes as there are pieces of artillery, and two redoubts on the wings, or certain places of arms, capable of covering the troops which are appointed for their defence.

All field batteries consist of four parts, viz. the ditch, the parapet, the platform, and the magazine; which see respectively.

The Sieur Remy, in his Memoirs of Artillery, has given a table for the ready finding of all the requisites for the construction of temporary batteries, and for their daily service, the pieces being twenty-four pounders; and although these batteries are calculated only for sieges, and are of the lesser kind, yet from this table may be derived such notions as will greatly help young artilliers on other occasions.

It is also proper to mention the number of fascines and pickets that is usually expected every day from the labour of each man employed in that service.

Of fascines five or six feet long, and five or six inches thick, bound with two with hands each, one man will make 16 or 18 in a day, with two pickets to each.

Of fascines eight or nine feet long by eight or nine inches thick, with two pickets to each, one man usually makes 10 or 12 in a day.

Of fascines 12 feet long by nine inches thick, with three pickets to each, eight or ten are usually expected from the day's work of one man.

The days here understood are such in which the men may work about twelve hours.

In the following table C. stands for hundred.
When batteries are erected at leisure, and are designed to stand for some years, they are built of stone, or brick, or good loamy earth, as the materials may be most easily procured.

To construct the profile of a battery, let its ground line be AB (Plate II. Fort, to fig. 23, No. 2.). BD that of the parapet, the inner slope of which is formed by making DA = 1 foot, and the perpendicular a H = 6 or seven feet; the crown of the parapet HI is formed by making BI a foot or two lower than a H; and the front of the battery IB is found by making IB = ¾ BI when of earth, or = ½ BI when of marram. If DC be made = 2 or 3 feet, we shall have C the fill of the embrasure, the floor of which may be any foot or two below the level line CF. The platform DE is 18 or 20 feet, the tail EF rising about 6 inches above the level line AB; the lower double line represents the sleeper laid lengthwise, and the upper double line shaded with the lines across shews the ends of the planks laid on the sleepers.

A gun on its carriage, with the wheels against the knocker at D, is annexed to the figure, for the purpose of showing the apprehension. For the construction of the embasures, merlons, ramps, &c., see the articles respectively.

**Battery, Open,** is nothing more than a number of cannon, generally field pieces, or such as carry a ball not exceeding nine pounds weight, ranged in a line or row a-breast of one another, on some small natural elevation of the ground, or an artificial bank about a yard or two high. These cannons are ranged at the distance of about 15 or 16 feet from one another; their shot and loading utensils lying by their sides, and the powder lodged in a hole at some distance behind the battery.

**Battery, Covered,** is the case when the cannons and gunners are covered by a bank made of broad-wood, faggots, and earth; about eighteen or twenty feet thick, and seven or eight feet high. The cannon used in such batteries are generally from nine to eighteen pounds; sometimes twenty-four pounds are used in them. See Fascine Battery.

**Battery, sunk or buried,** is that whole platform is sunk or let down into the ground, with trenches cut into the earth against the muzzles of the guns, to serve for embrasures.

This fort, which the French call batterie en terre, and ruimante, is generally used upon the first making of approaches, to beat down the parapet of the place.

**Batteries, Cross,** are two batteries at a considerable distance from each other, which play athwart one another at the same time, and upon the same point, forming right angles; so that they thus combine and produce a greater effect;
effect; because what one bullet shakes, the other beats down.

Battery or Barbet, Barbet, or Open Battery, is a name given to a battery, when the floor of part of it is so raised that the guns placed on it have an advantageous command over some part of the neighbourhood, and when the guns thus raised fire over the crown of the parapet without any embrasure. These barbets may be made either in a curtin, or at the falant angle of a flanker. They should be always 25 or 3 feet lower than the crown of the parapet, and about 8 or 9 yards broad at the top, with a proper slope to the base, of a length suitable to the number of guns to be mounted on them, allowing about five or six yards for each, and at each end have a proper ramp for ascending them.

For the further illustration of their nature and construction, let PQRSTV (Plate III. Fortis, fig. 25.) be a common bank of a line, the parapet of which is RSTV; the inner slope RS being about 6 or 7 feet higher than Q R; then the bank sam R, raised so high that the cannon may fire over the crown of the parapet ST, is the barbet, the height of which sp is about 3 or 4 feet. On the top of the barbet is raised a platform, as in other batteries. Let the figures 26 and 27 represent part of the plan of a line, and one of its flankers, or of a battery constructed in such a form; where Aa is the length of the barbet, or raised battery, suited to the number of guns to be used, which are to be drawn up the ramps placed at the ends; the breadth being about 8 or 9 feet, and the length a about 7 or 8 yards.

Battery, Crown. See Cavalier.

Battery d'Engin, is one which sweeps the whole length of a straight line, &c.

Battery en Échafaud, is that which plays obliquely.

Battery de Revers, or Murdering Battery, is one that plays on the back of any place; and being placed on an eminence, fees into it.

Battery joint, or par caméra, or camérette, is when several guns play on the same time upon one place.

Battery en Rouage, is that used to dismount the enemy's cannon.

Battery à Ricochet, is adapted to the method of ricochet firing, first invented and practised by Vauban, at the siege of Ath in 1692. The guns are loaded with small charges, and are elevated, so as to fire over the parapet; and the shot is hereby made to roll along the opposite rampart. This method of firing with guns has since been applied to mortars and howitzers with success.

Battery, Coffin, is that where the sides of the wall and embrasures only are formed of faèaines, and all the cavities or enclosed spaces filled with earth.

To construct a battery of this kind, mark out with a line the limits of the parapet eighteen or twenty feet thick; and three or four feet before the parapet, mark out with lines or marks the limits of the ditch, ten or twelve feet broad, or even more, if earth is wanted; allowing eight yards in length for one gun, and fix yards more for every other gun. On the outlines of the parapet cut a trench five or six inches wide and deep, and throw a row of faèaines, the ends being jammed one into the other; and let them be flanked down. Lay on them another row, so that the joinings of those may not be directly over the joinings of the lower one, and let all the knots of the hands be turned inward; flake these down; and on them lay in like manner a third and fourth row, &c. until the height be about three feet. The same kind of work being done at the ends, and for the encaissement if wanted, the coffers for the wall will be finished. Then let the men be disposed along the place intended for the ditch, and with proper tools break the ground and throw it into the coffers; where, as the earth is thrown in, other men are to spread it, and ramp it down with rammers; and thus the coffers is to be filled. When the wall is finished, let the embasures be flaked out (see Merlon), and a coffin formed in like manner for each merlon, which is also to be filled with earth, and rammed down. Proceed to complete it in the same manner with Fascine Battery.

Battery, Palatin. See Fascine Battery.

Battery, Gabion. See Gabion.

Battery, in Law, denotes an act that tends to the breach of the peace of the realm, by unlawfully lighting, beating, or offering other violence to another person.

Battery is frequently confounded with affiault, though in law they are different offenses; because, in the trespas for assault and battery, one may be found guilty of the affaault, yet not convicted of the battery; there may therefore be affault without battery; but battery always implies an affault. The least touching of another's person willfully, or in anger, is a battery; so that the law cannot draw the line between different degrees of violence, and therefore totally prohibits the first and lowest stage of it; every man's person being sacred, and no one having a right to meddle with it in any the slightest manner. Upon a similar principle the Corianian law "de injuriis" prohibited "pulution" as well as "verberation;" distinguishing verberation accompanied with pain from pulution without any. However, battery is in some cases justifiable or lawful; as where one who hath authority, a parent or master, gives moderate correction to his child, his scholar, or his apprentice. Thus also on the principle of self-defence, if one strikes me first, or even only afflicts me, I may strike in my own defence, and if seized for it, may plead "for affaault done me," or that it was the plaintiff's own original affaault that occasioned it. So likewise in defence of my goods or possessions, if a man endeavours to deprive me of them, I may justify laying hands upon him to prevent him, and if he perfid in violence, I may proceed to beat him away. 1 Finch. L. 203. Thus too, in the exercice of an office, as that of churchwarden or beadle, a man may by hands upon another to turn him out of church, and prevent his disturbing the congregation. 1 Sid. 301. And if sued for this or the like battery, he may set forth the whole cafe, and plead that he laid hands upon him gently, "moliter manus imposuit," for this purpose. On account of these causes of justification, battery is defined to be the"unlawful" bowling of another; for which the remedy is, as for affaault, by action of trespas "vi et armis," in which the jury will give adequate damages. Atrocius battery is subject to trial by inquisition in pursuance of the order of the court; in which case the battery must be alleged to certainly in the declaration, that it may appear to be the same with the battery inflicted. In the case of a person's beating the servant of another, besides the remedy of an action of battery or imprisonment, which the servant himself may have against the aggrieved, the master, as a recompence for his immediate loss, may maintain an action of trespas "vi et armis," in which he must allege and prove the special damage he has sustained by the beating of his servant, "per quod tertium amitit," and then the jury will make him a proportionable pecuniary satisfaction. A similar practice obtained among the Athenians, with whom no party is entitled to an action against such as beat or ill-treated their servants. A person guilty of battery against a clergyman, is liable to three kinds of prosecution for the same offence; an indictment for the breach of the king's peace, a civil action for damages, and a suit in the ecclesiastical court; toll, "pro correctione et salu animi" by enjoining penance, and then
again for such sum of money as shall be agreed on for taking off the penance enjoined; it being usual in these courts to exchange their spiritual centers for a round compensation in money (2 Rolls Rep. 384); probably, says judge Blackstone, because poverty is generally observed by the moralists the hell medicine "pro salute animae," El. Com. vol. iii. and vol. iv. Batteries is sometimes used in speaking of the fabric of metallic utensils. In this fence, battery-works include pots, saucepans, kettles, and the like vessels, which, though cast at first, are to be afterwards hammered or beaten into form.

Some make battery for the kitchen, batterie de cuisine, comprehend all utensils for the service of the kitchen, whether of iron, brads, copper, or other matters. Others take the term in a narrower fence, and restrain it to utensils of brads or copper. A society for the mineral and battery work of England was incorporated by queen Elizabeth.

Battery, in Electricity, is a combination of coated surfaces of glafs, so connected together, that they may be charged at once, and discharged by a common conductor. Mr. Gralath, a German electrician, was the first who contrived to increase the shock, by charging several phials at the same time. Dr. Franklin, after he had analyzed the Leyden phial, and found that it lost at one surface the electric fire which it received at the other, constructed a battery, consisting of eleven panes of large flat-glês, coated on each side, and connected in such a manner that the whole might be charged together, and with the fame labour as one single pane; and by bringing all the giving sides in contact with one wire, and all the receiving sides with another, he contrived to unite the force of all the plates, and to discharge them at once. A more complete battery is described by Dr. Priestley, of which he says, that after long use he sees no reason for wishing the least alteration in any part of it. This battery (see Plate I. Electricity, fig. 1.) consists of 64 jars, each ten inches long, and 24 inches in diameter, coated within 1/4 inch of the top; and contains in the whole 32 square feet. The wire of each jar has a piece of very small wire twisted about the lower end of it, to touch the inside coating in several places; and it is put through a pretty large piece of cork, within the jar, to prevent any part of it from touching the sides, which would tend to promote a spontaneous discharge. Each wire is turned round, so as to make a hole at the upper end; and through these holes a pretty thick brass rod with brass knobs, one rod serving for one row of the jars. The communication between these rods is made by laying over them all a thick chain. When part only of the battery is used, the chain is laid over as many rods as will furnish the required number of rows of jars. The bottom of the box, in which the jars stand, is covered with a plate of tin, and a bent wire touching the plate passes through the box, and appears on the outside. To this wire any conductor designed to communicate with the outside of the battery is fastened, as the small wire in the figure, and the discharge is made by bringing the brass knob to any of the knobs of the battery. When a very great force is required, the quantity of coated surface may be increased, or two or more batteries may be used. Franklin's Exp. and Obs. ed. 1769, p. 28. Priestley's Hist. &c. of Electricity, ed. 1775, vol. ii. p. 99.

However complete the battery above described appeared to be at the time of its construction, later electricians have discovered many imperfections to which it was subject; of which the principal are those that result from the form and size of the jars, the subsistence of the glês, the height of the coating, and the connections within the battery. In consequence of these imperfections in its structure and constitution, it is prevented from receiving more than about half the charge which it ought to receive in proportion to the quantity of its coated surface. The most perfect batteries of modern construction, since that of Dr. Priestley, have been made in Holland for Teyler's museum at Haarlem, by Mr. Cuthbertson of Poland-street, London, then residing at Amsterdam. Of these batteries there are two, differing in their magnitude and mode of construction, but allowed to be equally perfect. The first was completed in the year 1784, and is composed of 135 jars in nine boxes, each containing 15, which may be used separately or connected. As the nature of the experiment requires. Each box is a separate battery of itself; and the description of one box with a view of the figure, will be sufficient for explaining its construction and use. In Plate I. Electricity, fig. 2. It is exhibited a perspective view of Teyler's first battery, with its parts arranged in proper order for receiving a charge from the electrical machine. Each box, as we have already observed, contains 15 jars; each jar is 11 inches high, and 6 inches in diameter, contracted at the mouth to 4 inches, and coated so as to contain about 140 square inches; and thus the whole battery will contain about 132 square feet of coated surface. Each box is divided into 15 partitions, 5 of which are in the length and 3 in the breadth; the height of the sides of the box being somewhat lower than the coating of the jars, as are also the partitions in which they stand. The lid of the box is made without hinges, for the convenience of removing it from the box, that it may be removed while experiments are performed. It is taken off by lifting it upwards. The outside coatings of the jars are connected by means of crofs wires passing under the bottom of each jar; and those on the inside by means of a brass frame, bearing 15 brass balls, fixed upon the frame above the centre of each jar. All these balls, excepting the four at the corners, have wires screwed to them and hanging downwards into the inside of each jar; but the wires of the four corner jars are screwed to a post, which is cemented to the bottom of each in the inside. Upon these wires the whole frame rests, and is kept in its proper position. The four corner balls have holes, which receive the ends of the wires, and terminate at a proper height from the jars. By this contrivance the inside connecting frame may at any time be easily removed; and as this part of the machine is important, the construction of the whole frame is shewn separated from the battery in fig. 3. It is according to the above construction that Mr. Cuthbertson forms his present batteries, excepting that he has increased the size of the jars, so as to make one battery contain about 175 square feet, and he engages to prove by experiment, that the batteries of his construction are far superior to any others. Teyler's second grand battery was finished by Mr. Cuthbertson in 1789. This is the largest and most complete battery that was ever made. The whole battery, standing in proper order for receiving a charge, is exhibited in fig. 4. It consists of 100 jars of the same shape with that of those already described, only that they are so enlarged in size, that each of them contains 51 square feet of coated surface, instead of 140 inches, and the whole battery contains 5500 square feet of coating; and for convenience, it is put into four separate cases, each containing 25 jars in the form of a square, 5 on each side. The boxes are lined with lead on the inside for forming the outside communication; each jar has a perpendicular fland resting upon its bottom, and supported from falling sideways by three stays on the inside. Upon the top is screwed a three inch brass globe, from which proceeds a brass tube about one inch in diameter,
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Inflations when piles are erected perpendicularly either with two metals or with one metal, in consequence of the oxidation and the loss of moisture from perspiration and evaporation, the electrical action usually ceases after a few days; and in order to renew it, a second conjunction of the piles becomes necessary. Several methods have been proposed for making inflations more permanent in their operation than the pile, and more easily rendered active; but the most ingenious contrivance appears to be that of the trough, discovered by Mr. Crutcher. It consists of a box of baked wood, in which plates of copper and zinc, or of silver and zinc folded together at their edges, are cemented in such a manner as to leave a number of water-tight cells, corresponding to the number of the series: the arrangement becomes active when the cells are filled with the proper saline fluids; and it may at any time be easily freed from oxide by the use of muriatic acid.

In the common apparatus of Volta, that part bounded by the most oxidizable metal, as, for instance, the zinc, is found in a positive state, with regard to electricity, and the other part, as the copper, in a negative state; and when a communication is made between the two ends, by means of a conducting body, a constant circulation of electricity is established.

The electricity of the galvanic battery is capable of being partly transferred into the Leyden phial; and its effects, as has been fully shown by the experiments of Meffrs. Nicholson, Carlile, Woolaston, Van Marum, and Ritter, are similar to those of common electricity, in a low state of intensity. It gives shocks to living animal organs, and excites muscular contractions in bodies for a considerable time after death. It affords the form of fire in passing from one conducting body to another in its highly concentrated state; and it ignites small metallic wires or leaves, and causes them to enter into combustion. It sets fire to charcoal, sulphur, alcohol, and other inflammable bodies; and it rapidly decomposes water and various other fluids.

The intensity of the electricity in Galvanic batteries is greater in proportion as the series composing them are more numerous: but the quantity of it depends upon the quantity of surface they contain. Hence equal numbers of large and small plates arranged in different batteries produce nearly the same effects on the human body which is an imperfect conductor, and which can admit of the passage only of a certain quantity of electricity of a low intensity in a given time; but the large plates are in a determinate ratio, much more powerful in igniting the metals, and in affecting perfect conductors through which a large quantity of electricity, in any state of intensity, easily and instantly passes.

Many important philosophical discoveries, which will be fully described in the article GAlVANISM, have been already made, by means of the galvanic apparatus, in different parts of Europe; and a number of enlightened experimenters have been employed in investigating the principles on which its operation depends. The theory of it is, however, as yet obscure, and the perfect development of it will probably be connected with views more profound than any that have been as yet obtained, with the nature and agencies of electricity, and its relations to chemical changes. See Phil. Trans. for 1800 and 1801. Nicholson's Journal, vol. iv. and v.; and vol. i. of the series. Journals of the Royal Inf. vol. i. Tillich's Phil. Mag. vol. x. xi. and xii. Annalen der Physik. Journal de physique: Annales de Chimie.

BATTEURS d'Artillerie, fronts or horsemen, sent out before, and on the wings of an army, two or three miles, to
make discoveries, of which they are to give an account to the general. See SCOUTS.

BATTLE, CHARLES, in Biography, honorary canon of the church at Rheims, which was his native city, became professor of philosophy at the Royal College of Paris, and distinguished himself by his judgment, learning, and character. He was chosen a member of the Academy of Inscriptions in 1759, and of the French Academy in 1761. His death, which happened at Paris in 1780, is supposed to have been accelerated by the chagrin resulting from the want of succession of the elementary works which he drew up by order of government, for the use of the military school. His chief publications, written in French, are the following: "A Translation of the Works of Horace," 2 vols. 12mo; "The Morals of Epictetus, extracted from his own writings," 12mo. 1758; "A Course of the Belles Lettres," 5 vols. 12mo. 1760; to which are annexed his treatises, before published; "The Fine Arts reduced to a simple Principle," and "On Oratorical Composition;" "History of Primary Causes," 8vo. 1769. "The Four Poetics of Aristotle, Horace, Vida, and Boileau, with Translations and Remarks," 2 vols. 8vo. 1771; "Elements of Literature, extracted from the Course of Belles Lettres," 2 vols. 12mo.; "Elementary Course for the Use of the Military School," 4 vols. 12mo.; and "Translations of Ocelus Lucanus, and Timaeus Lucrensis." Nouv. Dict. Hist.

BATTLE, WILLIAM, born in Devonshire, in 1721, received his education at Eton School, whence he went in 1722, to King's College in Cambridge. On the death of his father, his mother moved to Eton, and afterwards to Cambridge, that she might be near her son, and assist in defraying his expenses. The Craven Scholarship becoming vacant soon after his admission, the Doctor offered himself as a candidate, and had the good fortune to be successful. Of the importance this small stipend, only 25l. per annum, was to him, we may judge, from what he says on the subject, in a letter to a friend. "I shall now," he says, "begin to live agreeably, and have, I hope, got through the worst part of my life." A recollection of the utility of this stipend to him, is probable. Bowyer says, induced him, in the latter part of his life, to found a similar scholarship, at the same university. Pursuing his studies, in 1726, he was made Bachelor, and in 1732, Master of Arts; he was also now one of the Fellows of the College. In 1729 he published a specimen of an edition of Icocrates, in one volume 8vo. He at first proposed studying the law, and his finances not being equal to the expense of taking chambers in one of the inns of court, in London, he communicated his intention to two wealthy cousins in the city, of the name of Coleman; but as they declined affording him, he turned his mind to the study of medicine, and in 1737, he took the degree of Doctor in that faculty. For a short time he practised medicine at Cambridge. Removing thence, he went to reside at Uxbridge, where, acquiring the confidence of some of the principal families in the neighbourhood, he soon came into considerable practice. About the year 1739, he married the daughter of Barnabas Good, one of the masters of Eton, having kept up an intimacy with the lady from the time of his quitting the school. He was also now noticed by his relations, the Colemanas, who were so much gratified by the confidence to which they saw him rising, that the survivor of them left him 30,000l. Continuing a few years longer at Uxbridge, he at length removed to London. In 1745, we find him, Fellow of the College of Physicians. The same year he spoke the Harveian Oration, which was published the following year. About the same time he was elected Fellow of the Royal Society. In 1749, he completed his edition of Icocrates, which was published in two volumes, 8vo. Though this work was not well received by the critics, it was always a great favourite with the Doctor. The year following he experienced a serious mortification. For taking an active part in a dispute between the College of Physicians and Dr. Schomberg, and being one of the most strenuous in opposing his admission as Fellow, he was held up to ridicule in a satirical poem, under the name of the Battand, in which a ludicrous account is given of the dispute, as well as some severe sarcasms on his favourite work. The Battand is supposed to have been the joint production of Mofes Mendez, Paul Whitehead, and Dr. Schomberg. It was published, at the time, in folio, and afterwards, in 1766, in a collection of humorous pieces, in 2 vols. 8vo. Another edition of this collection, much enlarged, was printed in 1792, in 4 vols. 12mo. There being at this time but one public asylum in London, for the reception of insane persons, which had been long found insufficient to contain all the indigent objects labouring under this affliction, a subscription was set on foot by some wealthy and benevolent individuals, to erect another edifice for the purpose, on the plan of Bethlehem Hospital. The scheme was so much approved, and so largely patronised, that in 1751 the managers of the fund were enabled to take, and fit up, a large building on the north side of Moorfields for the purpose, and as Dr. Battle had been very active in promoting the subscription, he was appointed physician to the institution, which was called St. Luke's Hospital. It contained one hundred and ten beds, twenty of which were appropriated to recent cases, such as were suppos'd capable of being relieved, or cured by medical treatment, and thirty for old and incurable cases. By the good conduct of the managers, and the character the charity thence acquired, the committee found themselves enabled, in 1781, to take a piece of ground, in Old Street, and erect a large and magnificent building for the reception of the patients, who were removed into it in 1786. The new building contains beds for 185 recent and incurable patients, and for 120 incurables. The present physician, who was elected into the office, in 1781, is Dr. Samuel F. Simmons. In 1757 Dr. Battle published a treatise on Madness, 4to, in which, having thrown out some censures on the medical practice formerly used in Bethlem Hospital, Dr. John Monro, whose father was implicated in the censures, replied, rebutting his charges, and having humorously taken for the motto to his remarks, "O major tandem parcas infane minori," the Doctor was afterwards called by the wits, Major Battle. In 1762 he published "Aphorismi de cognoscendis et curandis morbis nonnullis, ad principia animalia accomodati," taken principally from his Limieilian lectures. In February 1764 he was examined before a committee of the House of Commons on the state of the private mad-houses in the kingdom, which he shewed them, from instances that had fallen under his notice, to be so ill conducted, as sometimes to be used as prisons for persons whose relatives were interested in getting them out of the way. This gave rise to a series of regulations, made by the legislature, with a view of preventing the continuance of such practices; but they were not completely supressed until the year 1774, when the power of licensing private mad-houses was vested in the college of physicians.

As the Doctor had for several years confined his practice to maniacal cases, he had now leisure to indulge his inclination for building, to which he was much attached. Besides a large house, No. 88, Great Ruffell Street, Bloomsbury, for his town residence, he built an elegant villa at Twickenham, lately the residence of Countess Dowager Powlett. He also
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also erected a more considerable house on the banks of the Thames, at Marlow, in Buckinghamshire, where he passed much of his leisure time, in the latter part of his life. These houses were built under the immediate inspection of the Doctor, and after his own designs. Horrid of a paralytic stroke, at his house in Great Ruffin Street, the 13th of June, 1636, aged seventy-two years. Having bequeathed, his great property, upwards of 90,000l. was divided between his three daughters, of whom the eldest was married to cap-
tain, afterwards admiral Sir George Young, who sold the
house at Marlow, called Court Garden, to Richard Daven-
port, esq. an eminent surgeon of Essex Street, in the Strand, 
London; the second, to Philip Rainleigh, esq. a gentleman 
of Corwall; and the third, to the late Sir John Call, baronet.

Battifolium, or Battifolium, in Antiquity, a
kind of tower or defence, frequently mentioned by Latin 
historians of the middle age. It seems to have been wood, and
have to be erected on sudden and hasty occasions.

BATTLE, in Geography, a small market town of Eng-
land, in a hundred of the same name, in Suffol, is situated six 
 miles from Hatfingon, and 56 south-east from London. It was 
originally called Epton; but the decisive victory at Hatlings, 
gained by William, duke of Normandy, over king Harold, 
induced the former, when he was fixed on the throne, and 
founded the abbey, to change the name of the town to that 
which at present it retains. Battle consists of one principal 
street, indifferently built; and the parish church is a neat 
building, the incumbent of which is daily dean of Battle. 
The inhabitants support also a charity school for forty boys. 
The gunpowder which is manufactured here is esteemed the 
best in Europe, and hence called "Battle powder," though 
the town cannot boast of any other trade. The neigh-
bourhood, however, is so fertile, that an incredible number 
of large cattle are constantly sent up to the London 
marts for sale, especially what are denominated half-fed 
oxen, which produce the largest beef in England. Henry I. 
granted a market to be kept on every "Lord's Day!" but 
Anthony, lord Montague, who, about 1600, built himself 
a beautiful seat here, obtained an act of parliament to change 
the market day to Thursday, as it now continues. Battle 
is reckoned unhealthy, on account of its low dirty situation. 
Its greatest boast is the magnificent abbey built by William 
the Conqueror, on Heathfield, near the town, in 1067, to 
compensate, in some small degree, for the effusion of blood 
the year before; the highest altar of the fabric standing 
on the very spot where the body of the brave but unfortunate 
Harold was found. This abbey was filled with Benedictine 
monks from Normandy, and endowed with such extensive 
privileges, that if a convict were passing to execution, it was 
in the abbé's power instantly to release him, should they 
meet on the road. At the dissolution its revenues were val-
ued at 885l. 14s. 7d. The ruins of the abbey are very 
fantastic; and what remains undestroyed, serves as a house 
for the family of Wedder, and for the purposes of the town, 
the gate-house being used as the hall in which are held fe-
rous and other meetings for this peculiar jurisdiction. From 
Standard and Tullman hills are very extensive prospects. A 
fait related of abbé Hamo, in 1351, is worth recording; a 
body of Frenchmen lording and attacking Rye and Winchel-
sea, Hamo raised whatever force he could collect, repaired 
with Winchelsea, and having fortified it as well as he was able, 
cheeked the progress of the enemy, till the force of the 
country was sufficiently powerful effectually to repel them. 
Battle has three fairs, and two hundred and ninety-four 
houses, inhabited by 2040 persons.

Battle Island. See Bay of St. Louis.

Bat, a river in New South Wales, which runs N.E. 
into Salbakawen river, S.E. from Manchester house.

Battle, or Battel, Wager of, in Law, a species of trial 
of great antiquity, which had its origin in the military spirit 
of our ancestors, blended with superlition, and which con-
stituted in a kind of appeal to Providence, under an apprehen-
sion and hope, however premonstrant and unwarrantable, that 
the most would give the victory to him who had the right. 
Concerning the early history and general course of this 
mode of trial, see Combat. This trial, which had borne the 
immemorial practice of all the northern nations, and which 
had been first reduced to regular and stated form among the 
Burgundians, about the close of the fifth century, and 
passed from them to the Franks and Normans, was introduced 
to England, among other Norman customs, by William the 
Conqueror; but it was only used in three cases, one military, 
one criminal, and the third civil: the first in the court 
martial, or court of chivalry and honour; the second in 
appeals of felony; and the third upon issue joined in a writ 
of right. In these writs of right, the "jus proprietatis" 
could not often be ascertained without difficulty; and this 
mode of determining it was allowed for the sake of such 
claimants as might have the true right, but yet by the death 
of witnesses, or other defect of evidence, be unable to prove 
it to a jury. Although the writ of right itself, and of 
course this mode of trial, be at present much disused, yet it 
is still law and in force, if the parties chuse to abide by it. 

The last trial by battle that was waged in the court 
of common pleas at Westminster, though one afterwards occurs 
in the court of chivalry in 1631, and another in the county 
palatine of Durham in 1638, was in the 13th year of queen 
Elizabeth, A. D. 1571; and was held in Tothill fields 
Westminster, "non sine magna juris consultorium perturbatione," 
says Sir Henry Spelman, who was himself a witness 
of the ceremony. The form of it, described by judge 
Blackstone, is as follows.

When the tenant in a writ of right pleads the general 
issue, viz. that he hath more right to hold, than the demand-
ant hath to recover; and offers to prove it by the body of his 
champion, which tender is accepted by the demandant; 
the tenant in the first place must produce his champion, who 
by throwing down his glove as a gage or pledge, thus wages 
or challenges battle with the champion of the demandant; who, 
by taking up the glove or glove, challenges his part to ac-
cept the challenge. The reason why it was waged by chams-
ions, and not by the parties themselves, in civil actions, is 
because, if any party to the suit dies, the suit must abate 
and be at an end for the present; and therefore no judgment 
could be given for the lands in question, if either of the 
parties were slain in battle; and also that no perfon might claim 
an exemption from this trial, as it was allowed in criminal cases, 
where the battle was waged in person.

A piece of ground is then in due time set out, of sixty feet 
square, enclosed with huts, and on one side a court erected 
for the judges of the court of common pleas, who attend 
there in their feaht robes; and also a bar is prepared for the 
learned sergeants at law. When the court sits, which ought 
to be by fun-rising, proclamation is made for the parties, and 
their champions, who are introduced by two knights, and 
are attired in a coat of armour, with red gauntlets, barefigured 
from the knee downwards, bareheaded, and with bare arms to 
the elbows. The weapons allowed them are only batons, or 
lasses, of an ell long, and a four-cornered leather target; so 
that death very seldom ensued this civil combat. In the court 
military indeed they fought with scorns and lance, according 
to Spelman and Rutherford; as likewise in France only 
well-sought fought with the buckler and baton, gentlemen armed at 

3 all
all points. And upon this and other circumstances, the presi-
dent Montefquieu hath, with great ingenuity, not only de-
pended the impious collusion of private duels upon imagin-
ary points of honour, but hath also traced the heroic madness of
knight-errantry, from the fame original of judicial combats.
Thus to proceed.

When the champions, thus armed with batons, arrive
within the lists, or place of combat, the champion of the te-
man then takes his adversary by the hand, and makes oath
that the tenements in dispute are not the right of the de-
mandant; and the champion of the demandant, then taking
the other by the hand, swears in the same manner that they
are; so that each champion is, or ought to be, thoroughly
perfused of the truth of the cause he fights for. Next an
oath against forcery and enchantment is to be taken by both
the champions, in this or a similar form; "hear this, ye
justices, that I have this day neither eat, drink, nor have
upon me, neither bone, flesh, nor gráfs; nor any enchant-
ment, forcery, or witchcraft, whereby the law of God may
be abashed, or the law of the devil exalted. So help me God
and his saints."  

The battel is thus begun, and the combatants are bound
to fight till the scars appear in the evening: and, if the
champion of the tenant can defend himself till the scars ap-
pear, the tenant shall prevail in his cause: for it is suffi-
fent for him to maintain his ground, and make it a drawn battel,
he being already in possession; but, if victory declares itself
for either party, for him is judgment finally given. This
victory may arise, from the death of either of the champions:
which indeed hath rarely happened; the whole ceremony, to
far the truth, bearing a near resemblance to certain rural
athletic diversions, which are probably derived from this
original. Or victory is obtained, if either champion proves
recreant, that is, yields, and pronounces the horrible word of
crawen: a word of dignity and obloquy, rather than of any
determinate meaning. But a horrible word it indeed is to
the vanquished champion: since as a punishment to him for
forfeiting the land of his principal, by pronouncing that
shameful word, he is condemned, as a recreant, "amittere
liberam legem," that is, to become infamous, and not be
accounted "liber et legalis homo:" being supped by the
event to be proved forsooth, and therefore never to be
put upon a jury, or admitted as witnesses in any cause.

This is the form of a trial by battel; a trial which the
tenant, or defendant, in a writ of right, has it in his election
at this day to demand; and which was the only decision of fuch
writ of right after the conquest, till Henry II., by consent of
parliament, introduced the grand ajfàr, a peculiar species of
trial by jury, in concurrence therewith; giving the tenant
his choice of either the one or the other. Which example,
of discomfiting these judicial combats, was imitated
about a century afterwards in France, by an edict of Louis
the Pious, A. D. 1206, and soon after by the rest of
Europe. The establishment of this alternative, Glanvil,
chief justice to Henry II., and probably his adviser here-
in, considers as a most noble improvement, as in fact it was,
of the law.

The trial by battel may also be demanded at the election
of the appellee, in either an appeal or an approvement, and it
is carried on with equal solemnity as that on a writ of right;
with this difference, that there each party might hire a chas-
man, but here they must fight in their proper persons. And
therefore if the appellant or approver be a woman, a pre-
ate, an infant, or of the age of sixty, or lame, or blind, he or she
may counterplead and refuse the wager of battel; and compel
the appellee to put himself upon the country. Also peers of the
realm, bringing an appeal, shall not be challenged to wage
battel on account of the dignity of their persons; nor the
residents of London, by special charter, because fighting
seems foreign to their education and employment. So like-
wise if the crime be notorious; and if the thief be taken with
the "mainour," or the murderer in the room with a bloody
knife, the appellant may refuse the tender of battel from the
appellee; for it is unreasonable that an innocent man
should stake his life against one who is already half con-
vinced.

The form and manner of waging battel upon appeals are
much the same as upon a writ of right: only the oath of
the two combatants are vastly more striking and solemn.
The appellee, when appealed of felony, pleads not guilty,
and throws down his glove, and declares he will defend
the cause by his body: the appellant takes up the glove, and
replies that he is ready to make good the appeal, body for
body. And thereupon the appellee, taking the book in his
right hand, and in his left the right hand of his antagonist,
swears to this effect. "Hoc audi, homo, quem per manum
tendo, &c." "Hear this, O man whom I hold by the
hand, who called thynself John, by the name of baptin, that
I, who call myself Thomas, by the name of baptin, did not
feloniously murder thy father, William by name, nor am any
way guilty of the said felony. So help me God, and the
saints; and this I will defend against thee by my body, as
this court shall award." To which the appellee replies,
holding the bible and his antagonist's hand, in the same man-
er as the other: "Hear this, O man, whom I hold by the
hand, who called thyself Thomas, by the name of baptin,
that thou art perjured; and therefore perjured, because that
thou feloniously didst murder my father, William by name.
So help me God and the saints; and this I will prove
against thee by my body, as this court shall award." The
battel is then to be fought with the same weapons, viz.
batons, the same solemnity, and the same oath against amu-
lets and forcery, that are used in the civil combat; and if the
appellee be so far vanquished, that he cannot or will not fight
any longer, he shall be adjudged to be hanged immediately;
and then, as well as if he be killed in battel, providence is
designed to have determined in favour of the truth, and his
blood shall be attained. But if he kills the appellants, or
can maintain the fight from sun-rising till the scars appear
in the evening, he shall be acquitted. So also if the appelleant
becomes recreant, and pronounces the horrible word of
crawen, he shall lose his "liberam legem," and become infamous;
and the appellee shall recover his damages, and also be for
ever quit, not only of the appeal, but of all indictions like-
wife for the same offence. Blackf. Com. vol. iii. p. 337,

BATTLE, in the Military Art, signifies an engagement
between two hostile armies, drawn up in regular order, in a
country sufficiently open for them to encounter in front at
the same time; or should some obstacle occur to hinder the
readily entering into action of the whole line, for the greater
part of an army to begin the attack upon the troops opposed
to them, the rest remaining in fight, ready to act as occasion
may require their assistance or co-operation.

Other conflicts, when only certain points of the armies
are engaged, though generally of much longer duration, and
often attended with superior slaughter, are only termed fights,
or, as they are called by the French, combats. (Feuquieres
Memoires, chap. 80.) Under this denomination rank there-
fore, though as obfinate as most others on record; the en-
gagements of Seneffe, of Steinberke, of Oudenarde, and of
latter days, those of Zorndorff and Hochkirchen, equally
celebrated on account of the carnage which attended them,
and the importance of their consequences.
The loss of a battle involves almost always that of the artillery of the vanquished, and frequently of the baggage. As all these losses must be repaired before the beaten army can again look their conquerors in the face, the enemy consequently remains for a length of time master of the country, and at liberty to carry all his projects into execution. These inconveniences are rarely so fiercely felt in case of ill success in a partial combat, however decisive. Greater part of the artillery is generally preserved, and the baggage almost entire; for the opposite armies not closing in front, the civilians which have been engaged alone become the sufferers.

But in a set or pitched battle, the present object of attention, where both parties have time and room sufficient to arrange and extend themselves in regular order, the case is widely different. The least unforeseen advantage afforded to an enemy, or the most trivial circumstance unattended to, may balance the efforts of the most experienced general, may snatch the palm of victory from the hands of numbers and valour, convert a successful pursuit to a disorderly flight, and lead to the irretrievable ruin of an army, possibly even of a state.

The ancients never joined battle without a great deal of preparation and religious ceremony; as making auguries, offering up sacrifices, haranguing to excite the courage of the soldiers, giving the word, or a teffera, &c. The signals of battle were, among the Romans, founding the claccium, or general charge, striking upon their shields with their javelins, and displaying from the prætorium a peculiar flag, called by Plutarch (in Fab. Max. and in Pomp.) a red mantle. Cæsar also mentions this flag in his B. Gallic., lib. ii. c. 20. In the moment of onset, a shout was raised by the whole army, for the double purpose of encouraging their fellows, and striking terror into the enemy. Similar to this was the custom which prevailed among the Greeks, of singing the paean, or hymn of combat, as they moved forward to the charge.

The rigid superstition of the Jews at first prevented them from fighting, or even from defending themselves, on the fast-day; but fatal experience of the inconvenience of the latter precept, induced them, in their wars with the princes of the Syro-Macedonian dynasty, to dispense with its observance. It was, however, in consequence of the sullen they still retained to a violation of that holy day, that Pompey became master of Jerusalem by assault, without any effectual resistance. Dion. Cafl. lib. xxxvii.

The Romans did not carry their regard for religion so far. They had indeed their peculiar days, called "preliares dies," wherein alone it was lawful to join battle; and others wherein it was unfit, called "dies atri," but less scrupulous than the Hebrews, these latter were only observed in respect of attacking. No day was so sacred for them to defend themselves in. (Macrobi. Saturn. lib. i. c. 5.) We observe frequent instances of their engaging by night. It was by right that Scipio defeated near Utica the armies of Africul and Syphax (Lib. xxx. c. 5.); and the decisive battle between Pompey and Mithridates (Plut. in Pomp.) was fought by moonlight.

The Athenians were prohibited, by the ancient laws of their country, from drawing out their forces for battle till after the 7th day of the month; and Lucian, speaking of the Lacedemonians, relates, that by the statutes of Lycurgus, they were not to fight before the full-moon. A similar custom prevailed among the ancient Germans, who reputed it an impious to engage in the war of the moon; and Caesar intimates that his victory over Ariobatus was owing to that prince's having, contrary to the religious maxims of his countrymen, fought during the decrease of the moon. The barbarians were intimidated with the apprehension, and afforded Caesar an easy conquest. To the: own words: "Aice commissa impedibat religione nocte victa." Cafl. de bel. Gal. lib. iv.

An idea of the manner in which warlike operations were carried on, and battles fought, among nations in their primitive barbarous state, has been given under the article Attack. We shall not here repeat what has been already said on that subject.

Authors are fond of quoting the battle of Thymbræ, between Cæcrops and Cyrus (Xenophon. Cyrop. lib. vi. vii.), as the first general engagement ever fought. But as it is only related in the Cyropædia, a work whose historical veracity has been severely called in question, and as its recital is attended with circumstances of the most romantic cast, we shall content ourselves with barely mentioning it, and pass on to instances better authenticated, and less embellished by the marvellous.

At the battle of Marathon (Herod. Eiat. sect. 107. 117.) the Greeks, conducted by Miltiades the Athenian, demonstrated the possibility of compensating by discipline, valour, and military skill, for any inferiority in numbers. A manoeuvre not without its faults, but novel in the art of war as then understood, obtained for them a victory as splendid as extraordinary; and which we may rank as the earliest in profane history, of which any particular account has been transmitted to us.

The battle of Platea, from the numerous forces engaged on either side, behoves the denomination of a pitched battle. (Herod. Calliope, sect. 61. 74.) It was fought upon the true ancient model. Hurry and confusion reigned predominant. Greeks and Persians engaged in two several places, without any attempt at co-operation, or the smallest exertion of military genius on the part of their commanders. In the true language of Homer, here "man was opposed to man, and shield met shield;" and the Greeks seem to have fairly achieved this alluring conquest by excelling their adversaries in the vulgar qualities of bodily strength and brutal courage.

After toiling through the heavy and fagacious period of the Peloponnesian war, where, though convinced at every page of the rapid improvement of the Greeks in tactics, we do not meet with any of those general or important contests, the subject of the present article; and after taking a cursory examination of the misfortunes of Cynax ; we at length arrive at the battle of Leuctra. (Phist. in Popol. Xenophon. Hellen. lib. vi. Diod. Sic. lib. xv.) This brilliant engagement, between numbers comparatively trifling, derives from a scientific reader more attention than that of Platea, as it is indubitably the first occasion on which victory was obtained merely in consequence of an able dispositions. The famous column of Epaminondas, which obliged 24,000 Lacedemonians, the bravest troops in Greece, to yield the honour of the field to 6,000 Thebans, has been repeatedly cited with admiration by the most learned authors, and imitated by the first military geniuses, on various occasions.

The battle of Mantinea, the next instance worthy of particular observation, was won by the same general (Xenophon. Hellen. lib. vii.) on the very same principle. The Lacedemonians, though conducted by their king Agis, one of the ablest leaders of his age, suffered themselves to be again destroyed, by the precise disposition which had already proved so fatal to them at Leuctra. The Spartan glory, by the loss of this battle, sustained a blow it never afterwards recovered. Epaminondas, whose genius had made the bravest followers in all Greece shrink before weaker armies, took 107. 117. inferior
inferior numbers, expired on the field he had immortalized no less by his personal exploits, than his able arrangements before the action. Henceforth pitched battles are more frequently distinguished by matterly strokes of generalship.

The formidable phalanx, then a late invention, no less than his own military talents, secured to Philip of Macedon his important triumph at Chaeronea. (Diod. Sic. lib. xvii. ch. 86.) The three great battles of Alexander against Darius were gained but with little difficulty, owing to the superior tactics of the Greeks. Those of Ipsus and Arbela in particular (Arrian. Alex. iii. lib. xiv. 15. Quint. Curt. lib. iv.) were only slaughter. When we read that in the latter, with the loss of only 1,200 of his own men, the Macedonian destroyed, according to the least exaggerated accounts, 40,000 of the Persians (Arrian says 300,000), it is pretty plain that the resistance was but nominal, and that the conquerors had little more trouble than to do execution on their enemies.

The Grecian history, subsequent to Alexander, is replete with instances of pitched battles; but of which little or no particular account has been left us. We are for the most part in the dark with respect to the order observed in drawing up the rival armies, and the manoeuvres which accelerated or retarded a victory. The abrupt termination of the history of Diodorus Siculus, deprives us of any details respecting the battle of Ipsus, except the brief and unsatisfactory account of Phalæon (in Dem.). The number of the slain alone leaves us sometimes a little room to judge of the importance or the obstinacy of a conflict.

Polybius, however, has left us (lib. ii.) a full and interesting account of the decisive engagement at Sellasia, which, for a time, completely subjected the Grecian states to the power of Macedon. Here again the phalanx determined the fortune of the day, and demonstrated the superiority of its close and impenetrable order, over the more loose and shallow battles of its antagonists.

Among the Romans we shall find still further occasion to remark the rapid improvement of ancient tactics. Guided by Polybius and Livy, we pursue with peculiar interest the account of battles fought for the mastery of the world, perpetually differing in situation, in success, and in consequences. That of Tisso, in particular, between Regulus and Xanthippus, calls strongly upon the attention. We are not dazzled by a long list of numerous forces and barbarous auxiliaries, fatigued by a repetition of defultory attacks and repulses, or bewildered amidst a series of complex manoeuvres. Two armies, nearly equal in numbers, of small strength, but furpremely valor; headed by renowned generals, encounter on a spot of ground easily surveyed by the eye of imagination. We remark their several dispositions. The simple narrative of the historian points out clearly and satisfactorily the faults or advantages of these dispositions, the mistaken rations of the Romans, and the consummate generalship of Xanthippus; and before we enter upon the vicissitudes of the action, we are fully convinced that the errors committed by Regulus must ultimately lead to his total defeat. Polyb. lib. i.

The march of Hannibal into Italy furnishes us with several instances of pitched battles, various in their nature, important in their consequences, and interesting in description. Far from being fatigued with following the brave Carthaginian through a continual scene of slaughter, we consider and admire his conduct, feel for his difficulties, eagerly accompany him in the field of carnage, and take a lively interest in his proceedings. The three famous engagements of the Trebia (Polyb. lib. iii. Liv. lib. xxii. sect. 53—56.) of the lake Trasymene (Polyb. ib. Liv. lib. xxii. sect. 4—7.) and of Cannae (Polyb. ib. Liv. lib. xxii. sect. 44—52.) rising in importance above the other, chiefly arrest our attention. We find that previous to every one of these, the arrangements made by Hannibal were such as almost to ensure success. A series of artful movements was contrivantly employed to draw the Romans into the states prepared for them; and their commanders, deluded by the genius it was necessary to oppose to so formidable an enemy, rushed, as it were, blindfold upon their ruin; though solicited in each of the confents we have just named of every advantage of numbers, resources, and, we may even add, of valor. The talents of a single man reduced those advantages to nothing. The numbers were converted into an hindrance to themselves, their resources were intercepted or rendered useless; and their valor, degenerating into despair, precipitated them madly upon certain destruction.

No action was ever more obstinately fought, or as a pitched battle deserves more consideration, than that of Zama (Liv. lib. xxx. sect. 32—35. Polyb. lib. xivn. lib. xv.), where the fortune of a Scipio finally triumphed over the Carthaginian republic. Without more than barely naming it here, we refer the reader for a more particular account of that celebrated affair, to the article Zama.

From this time, Roman discipline and valor reigned triumphant in every struggle with foreign nations. The armies of Antiochus, Pericles, and Mithridates, were destroyed, for the most part, with scarcely an effort; and the battles they ventured in defence of their dominions are only miserable instances of the inferiority of mere courage, supported by tenfold numbers, to the cool and steady bravery of veteran soldiers, directed and managed by the talents of an experienced general.

But however cheaply the legions of Flamininus, of L. Scipio, of P. Aemilius, and of Lucullus, had earned their laurels, a harder task was imposed on those who, under Cornelius Sylla, and Julius Cesar, turned their arms against their own countrymen. They had to engage with troops equally courageous, expert, and strictly disciplined; with men who, under Marius and the great Pompey, had exterminated the hordes of the savage Cimbri, and had subjugated the eastern world; in a word, with Romans. Three pitched battles, those of Pharsalia, Thapsus, and Munda, signalized this bloody period, and gave ample scope for the exertion of the utmost talents of the matchless Cesar. Yet in the list of these engagements, that consummate general confidelled, that he contended not for victory, but for his life; a satisfactory evidence of the desperation with which it was fought. Plut. in Cæs.

The two battles of Philippi are equally famous. Few have been more decisive in the event, or more distinguished for the uncommon perseverance and obstinacy with which they were contested.

In the age of Tacitus, we find the military science of the Romans brought to perfection. Similar to the train of artillery which modern generals carry into the field, the army of Vitellius at Cremona planted its batteries to play upon the enemy, and with showers of immense stones, swept them away by whole ranks. (Tacit. Hist. lib. iii. sect. 23.) This battle, and the subfstreaming of the adverse camp by the legions of Vepsiusian, give us a perfect insight into the mode of warfare as then practised. Tacit. ibid. sect. 21—33.

In the later ages of the empire we meet with very few instances of conflicts, remarkable either for their long duration or for any celebrated manoeuvres put in execution by rival generals. Nations relapsed fast, even in this destructive science, into their original barbarism. Armies were no longer composed
compiled of troops regularly trained and insured to service, but of cowardly and undisciplined plunderers, to whom victory or defeat was alike the signal for pillage, on whose exertions therefore but small dependence could be placed, and from whose successes little or no benefit could be derived. Numbers soon became, as formerly, the criterion of advantage. War teemed with fantastical combats, productive of trifling consequences. Courage supplied the place of generalship; fury and carnage, of discipline.

Never did a series of pitched battles follow each other in more rapid succession, than during the period subsequent to the fall of the Roman and Persian monarchies. As we accompany them in their progress, the most incredible victories crowded upon and harass our reflections. It is true, that among these engagements, so general, so bloody, and so decisive, we do not find the slightest trace of discipline or generalship. A religious fury, altogether irresistible, compensated with the Arabs the want of both these requisites. Azzadin, Kadija, and Yermouk, are lasting monuments of Mujlem glory; but they do not convey the least information to the military reader, or recompense in interest the attention he may bestow in perusing them.

Alas barren, dry, and interlacing, are the details of most of these battles fought between the time of Charlemagne and the beginning of the seventeenth century. Whether we prune the murderous annals of the Crusades, where all Europe and Asia seem mingled in reciprocal carnage; or the bloodless combats of the Italians in the days of Machiavel, when, after fighting a whole day, armies have separated without the loss of a man on either side (Machiav. Hist. Flor. lib. vii.) we are alike disgusted with the want of circumstantiality to excite our attention.

Crefly, Poitiers, and Agincourt are names venerated with reaso by every Englishman; but setting aside any consideration of the splendid carnage which attended them, and examining them in a military point of view, how little shall we find to extol, how much to censure. In all the three cases, the English armies were brought into the most imminent danger by the Boyish imprudence of their leaders, who ordered them, as it were blindfold, into the heart of an enemy's country, without taking the smallest pains to secure the necessary supplies of provisions, or to ensure a retreat. Not to be behind hand in imprudence, the French generals, although certain of vanquishing their antagonists into a surrender merely by an incomparable delay, had three times successively the infantry to march up and attack the English, strongly and advantageously posted, and on ground too where not a fourth of their own numbers was capable of acting. Unattached by experience, they left the three great battles by exactly the same fault; and in all three (the contested tradition of the artillery used at Crefly alone excepted), we find no reason to commend the military science of our ancients. Indeed, at Poitiers, the Black Prince possessed sagacity sufficient to line the hedges on both sides of a narrow way with archers, for the purpose of annoying the French gens d'armes as they advanced through it to the attack; a stratagem not half so commendable as that of Nevil, earl of Salisbury, at the petty skirmish of Bosworth, in the reign of Henry VI. (Holinshed); an affair as much surprising Poitiers in a tactical consideration, as inferior in the bloody list of the killed, and the consequences that ensued upon it.

In proportion as we approach nearer to modern times, we view the military science making fairer strides towards improvement. The invention of gunpowder effected by degrees an important change in the whole art of war. The arms and order of the battalions underwent a total alteration. The cavalry, formerly the main dependence of an army, much that no peron of family would serve in any other capacity than as a horseman, became a mere appendage to the infantry, who, since the invention of fire-arms, have generally decided the event of battles. The musquet and bayonet are now substituted for the pike and sword; and armies, like fortified places, must be approached in form, and battered down by artillery, while the most complete defeat is rarely attended with worse consequences than the loss of the surrounding territory.

About the year 1630, the entrance of Gustavus Adolphus and his Swedes into the German empire, and the great events which signalized the war of thirty years, render military history more interesting. The celebrated battles of Leipsic and Lutzen, where the first modern use was made of the column, now the chief instrument of the gain of victories, are remarkable epochs. On those days the hard-earned laurels of Tilly and of Wallenstein faded in a moment before the comprehensive genius of Gustavus, who, by his skilful dispositions bought, though with his life, the title of the first general of his age. A succedan of heroes, Waller, Turenne, and Wrangel, adopted and improved upon his maxims. Condé and Turenne profited anew by the example; and a succession of victories obtained under their auspices, rendered the arms of Louis XIV. during 50 years invincible.

On entering upon the history of the war of 1690, we are surprised at the rapid improvements in that part of the military art, the subject of the present article. The engagement of Steinkirk presents a remarkable influence of the recovery of an affair judged entirely desperate. The battle of Landen shows us an army entrenched behind a number of fortified villages, driven from all its defences, and carried as it were by storm. The bayonet, used first by Catrin at the action of Marlagli, added a new and terrible weapon of offence to the infantry, and by degrees entirely superseded the use of the pike. The reader will now observe armies more numerous and more regularly habituated than formerly, plans of attack and defence more ingenious and connected, artillery more formidable and better served, and a degree of method in military operations not before practised.

In the war of succession, or that which took its rise from the separate claims of the houses of Bourbon and Anjou to the Spanish monarchy, the three great battles of Hochheidt, of Ramillies, and of Turin immortalized by the abilities and splendid victories of Eugene and Marlborough, claim particular attention. To enlarge upon each under the present article, would trench too much on the boundaries assigned to us; we therefore refer the scientific reader to the heads Hochheidt, &c. where he will find a succinct account of those engagements, illustrated by the critical remarks of an excellent military judge, M. de Feuquieres.

Of all the battles fought by Charles XII. in his nine years' war with the Ruffian empire about the same period, that of Pultowa alone is remarkable in a tactical point of view. Nares, Duma, Cislow, &c. furnish but splendid and transitory influences of successful redundants in a military madman. The battle, or rather five battles, of Leino on the Soffa, fought by general Lewenhaupt against the whole forces of the Czar, are interesting in so far as they display the astonishing resources of Swedish valour.
From a tranquility of fifty years, hardly interrupted by the short contest for the succession of Poland, Europe was aroused by the war of 1794. With wonder we behold a nation, hardly before reckoned in the number of her powers, a nation of soldiers, flung into energy; and, headed by a monarch who to the most consummate generalship joined the qualifications rarely found in military men, of love for the sciences, and genius for their improvement, perform the most astonishing and romantic exploits. It would be superfluous to follow the Prussian hero through his career of victory and glorious diffrefs, or to enumerate the various means and manoeuvres by which he triumphed at Friedberg, at Prague, at Lissa, at Zorndorf, and at Torgau, over the firms and discipline of Austrian forces, the talents of a Daun, and the enterprise of a Laudohn. Nor have we room to enter into details of his defeats at Kolin, Hochkirchen, and Cunnersdorf; defeats which only throw additional lustre on his transcendent abilities.

It seemed impossible for human genius to surpass the bounds prescribed by the immortal Frederic to modern tactics. His hand had modelled armies into mere machines, liable to be directed with precision at the pleasure of the master. The systems practiced in the Prussian and Austrian schools, seemed to defy alteration or improvement; and the art of drawing up armies in order of battle particularly was reduced to certain rules, adapted to all situations, and which ensured every presumptive means of success.

A revolution, the effects of which have been severely felt in the most remote corners of the globe; a revolution, which has shaken the religious and political opinions of the most powerful nations, arrived to overturn monarchies, to change the face of Europe, and to convert it into one vast theatre of war. The military art did not escape the general influence. When the armies of Prussia and Austria, numerous, valiant, and bred up in the schools of Frederic and Laudohn, poured their united forces upon the French republic, opposed only by raw levies, undisciplined, half armed, and conducted by generals, many of whom knew nothing of service by experience; what resources could we suppose a nation to possess, capable of counterbalancing such disadvantages! But with amazement we view the disciplined invaders, at the end of the first campaign, driven back with shame and defeat. We view the bold officers in Europe in a disgraceful retreat before mere novices in the art of war. We view enthusiasm supply the place of commanders, of numbers, and of discipline.

One general battle had subjugated Belgium to the dis- pofal of France, when the treachery of a general not only occasioned the loss of that country, but endangerd the frontier of the republic itself, then covered only by a disorganized army. Nevertheless, during a long and bloody campaign, the forces of almost the whole of Europe united strove in vain to break through the first line of the bordering fortresses. The scene was soon totally changed. The collected energy of a nation, overbearing all opposition, repelled the attack; retaliated invasion; and by the loss of the most brilliant campaigns recorded in history, achieved such importan, rapid, and extensive conquests as almost exceed credibility.

We must not place to the sole account of enthusiasm these wonderful successes. Enthusiasm alone, though backed by still greater numbers, must ultimately have proved insufficient, when opposed to disciplined troops and skilful generals. The art of war gradually assumed a new face. To the maxims of the German school, others succeded still more prompt, more energetic, and peculiarly adapted to the nation which carried them into execution. To the excellence of their artillery, their skill in the art of managing the bayonet, and the incredible rapidity with which they have executed the different modes of charging in column, as well as to the extraordinary talents of their self-taught generals, the French owe chiefly their successes in the late war. Under some future article we shall hazard some observations on their mode of engaging.

In a war so productive of bloody and general engagements as the last, it would be superfluous to dwell on particular instances. Never in one campaign did so many battles take place as in 1794, when from the beginning of April forwards hardly a day passed without some desperate conflict. In point of conseqences, we must allude the first rank to Jemappes, Tronlembourg, Haueneau, Fleurs, Millemoi, Arcoles, Marconge, and Hohenlinden; but if we only consider the slaughter on both sides, Lodi, Verous, Stockach, Novi, and Zurich stand pre-eminent. A few remarks upon these, with some other affairs of principal consequence, will be found under their proper heads.

When we consider the immense resources required to maintain a large army, and the inconvenience with which the movement of more unwieldy bodies is still attended, we shall find room to commend the least extensive scale on which we carry on our wars, compared to that of more ancient times. Indeed the armies, which we are affured have been brought forth to battle in the earlier ages, almost flag our belief. Sestos is said (Diod. Sic. i.) to have had 600,000 foot, 24,000 horse, and 27,000 armed chariots, on his famous expedition into Upper Asia. The same historian swells the armies of Numa and Semiramis to two and three millions of men. We are told in scripture that Zerah, a barbarous potentate, invaded the kingdom of Judah with a million of his subjects, who were totally exterminated by the Jewish monarch Asa; nor are the accounts of the numbers engaged at mount Zemarain on both sides, and the carnage of the Israelites on that occasion less marvellous. (II. Chron.) Darius, in his Scythian expedition marched at the head of seven hundred thousand of his subjects (Herod. lib. iii.). Xerxes invaded Greece with a fleet of more than 1500 triremes, and a land army of 2,100,000 men. According to Herodotus (lib. vii.), the whole of his sea and land forces numbered above five millions. These numbers, immense as they are, will hardly appear exaggerated, when we reflect on the hosts afterwards brought into the field by the Goths and Huns, and the formidable swarms of Croats in the middle ages. The last Darius, when he engaged Alexander at Issus, mustered in his army fix hundred thousand men; and some historians make his forces at the battle of Arbela amount to a million.

The ease with which these immense hosts were defeated by comparatively trifling numbers of Greeks, gives us the most mean idea of their bravery and military skill. We must except the instance of Platea, where the victory was obliquely disputed, and the carnage consequently dreadful. There are few instances upon record of a battle so completely decisive. Of 300,000 men, of whom the Persian army conf in the commencement of the action, not four thousand escaped the destruction of that fatal day. (Herod. ix.)

The Romans, although they sometimes kept very numerous forces on foot in different parts of their dominions, seldom employed above forty thousand men in the same army. In their war with the Cilapinese Gauls, subsequent to the first Punic, they levied between seven and eight hundred thousand troops; but those all acted in separate corps. One of the largest armies they ever brought into the field, was that defeated, or rather destroyed, at Cannae by Hannibal. It consisted of 75,000 foot and 7,200 horse, of all whom only
only about 5,000 escaped death or captivity. This defeat, terrible as it was, was some years after revenged by the slaughter of 60,000 Carthaginians on the banks of the Matraus. (Polyb. lib. ii. & iii. Livy.)

We shudder at the cruelties which sometimes accompanied the triumphs of Rome over her more barbarous and undisciplined enemies. L. Scipio destroyed 50,000 Syrians at Magnesia. Marius, in his contest with the Teutones, took or exterminated above 300,000 of them. In a second battle, against the Cimbri, he slew 120,000, and captured half that number. In three battles against the generals of Mithridates, Sylla cut in pieces 200,000 men. The bloody defeat he sustained from Lucullus, during the siege of Cyzicus, cost the fame Mithridates three hundred thousand of his forces. On one occasion, Julius Cæsar annihilated an army of 368,000 Helvetii; on another, he extinguished upwards of 430,000 Germans, who had crossed the Rhine in quest of new settlements. (Liv. Plut. in Mar., Sylla, & Lucull. Cf. de Bell. Gall.)

In the civil wars of the Romans themselves, we find instances of the inferior numbers of the troops engaged, of slaughter equally dreadful. In the battle before the Colline gate of Rome, Telemachus, a general of the Marian faction, commanded 59,000 men against Cornelius Sylla; 12,000 of these being taken, were chiefly massacred in cold blood after the action; all the rest perished either on the field or in the flight by the swords of their implacable countrymen. In justice to Cæsar we must observe, that his triumphs over the Pompejan party were in a great measure exempt from these atrocities. (Plut. in Sylla. Eur.)

It is the well-founded remark of a judicious and elegant writer, that our European battles appear only as skirmishes, when compared to those which have desolated the plains of Asia with blood. (Voltaire, Effai sur Pelpist et les Mœurs des Nations.) In the year 218, fatally distinguished as being the epocha of the first invasion of the Moguls and Tartars into the southern provinces of Asia; the destroyer Ghengis-Khan marched to the siege of Otrar at the head of 700,000 combatants. Mohammed, the reigning sultan of Karazam, opposed him with an army 400,000 strong. The weaker party was defeated, and the Tartar conqueror commenced his fangianary career by the destruction of 150,000 of his enemies. This first chastisement only paved the way for others still more terrible. In following the great Khan through the dreadful scenes transferred by De la Croix from the best Eastern authorities, we are shocked at the unheard of ferocities exercised upon such cities as fell incurred his anger by an obstinate resistance. The particulars of such tragedies would but disgust the reader. To select a few of the most remarkable instances:—At the storming of Karazam, Mohammed's capital, 200,000 persons were massacred, and half that number fell as slaves; 60,000 were flung to death with arrows in cold blood on the plains of Nefia; 1,747,000 were butchered in the two cities of Sinhbir and Tum, and their dependencies; 1,600,000 in the district of Herat; and in the last battle fought by Ghengis Khan against the rebels of Targut, 320,000 are reported to have perished. To diminish this subject, the Chinese records inform us, that during the five years of the Mogul empire, the numbers of persons flourished by Ghengis Khan amounted to the dreadful total of eighteen millions and upwards. (Petit de la Croix, Hist. de Ghengis Khan, Par. 1710. Mod. Univ. Hist. vol. iv.)

The subsequent wars of the Moguls abounded with examples of almost equal enormity. In the siege of the capital of the Chinese empire by Oktay Khan, a million of people were slain on both sides. Timur Bek, who carried on his expeditions upon the same plan as Ghengis, could bring 80,000 men at once into the field, with whom he so completely defeated at Ançara 400,000 Turks under Bajazet, that not a fourth part escaped the common destruction. In a word, it is in Asia that war has always been waged on the most gigantic scale.

Let us bloody in their conquests, and more generous in their disputes, the armies, which during the two last centuries have been set on foot by European nations, were comparatively trifling in number. The battle of Malplaquet, where 220,000 men were engaged on both sides, is most remarkable for the number of the combatants; thóse of Hohenlinden and Prague for the destruction of the human species. At Hohenlinden, the French and Bavarian army, which before the action amounted 60,000 men, was reduced to one-third of that number. The battle of Prague cost the king of Prufia, by his own confession, 18,000 of his best troops, while the Austrians lost 24,000 men.

It is with sorrow we are obliged to remark, that the carnage on several occasions, during the last unhappy contest, has been unexampled in the history of modern war. Upon the Rhine, in particular, the losses on both sides, towards the latter end of December 1755, is computed at 80,000 men.

The following concise list of the most remarkable and decisive battles which have taken place (chiefly in Europe) from the earliest ages, may not prove wholly unacceptable.

B. C.

Marathon, between the Greeks and Persians, fought 490
Himera, in Sicily, between the Greeks and Carthaginians, 480
Plataea, Greeks and Persians, 479
Mycale, in Ionion, 479
Eurymydon, 478
In Egypt, between the Athenians and Persians, 460
Of the Athenians, in Sicily, between the Athenians and Syracusans, 413
Cyaxara, in Persia, 400
Corone, between Agesilus and the forces of the Theban alliance, 394
Leuctra, where the Spartans were entirely defeated by Epaminondas and the Thebans, 371
Mantinea, 369
Cheronäa, 367
Of the Granicus, 334
Ilissos, 333
Arbel, or Gangamela, which subverted the Persian empire, 331
Of the Hydaspes, between Alexander and Porus, 327
Ipsa, in Kyphyga, 301
Beneventum, in Italy, between Pyrrhus and the Romans, 274
Agrigentum, in Sicily, between the Romans and Carthaginians, 262
Tunis, in Africa, do. 255
Panormus, in Sicily, do. 251
Of the Maen, in Africa, between Hamilcar Barca and the revolted mercenaries, 239
Tribia, in Italy, between Hannibal and the Romans, 218
Of the lake Tarratinum, do. 217
Cassone, do. one of the most complete defeats mentioned in history, 216
Sena, on the Metaurus, where the army of Alcidas was cut off by Nerius, the Roman confid, 207
In Spain, between Scipio and Alcidas the son of Gisco, 206
Zama, Hannibal totally defeated by Scipio, 203
Magna, between L. Scipio and Antiochus, 190
Pydna, between Perseus and P. Aristides, 168
BATTLE.

Nepheris, decisive of the third Punic war.
Cirta, in Numidia, between Marius and Jugurtha,
Near the Rhone, where the Romans suffered a terrible defeat from the Cimbri and Teutones.
Aquae Sextiae, between Marius and the Teutones,
Vercelli, in which Marius totally exterminated the Cimbri,
Chersonae, between Sylla and the army of Mithridates,
Orchomenus, do.
Before the gates of Rome, between Sylla and the Samnite Telemnius,
Cabrica, between Lucullus and Mithridates,
Tigranocerta, between Lucullus and Tigranes,
Carthage, Crassus defeated by the Parthians,
Pharsalia, between Caesar and Pompey,
Philippi,
Aetium

Bedriacum, between the legions of Otho and Vitellius,
Cremona, between the generals of Vitellius and Vespasian,
Lugdunum, in Gaul, between Severus and Albinus,
Chalons, between Etius and Atilia, in which 300,000 persons fell on both sides,
Aizanad, in Syria,
Kedashe, in Parnis, which subverted the empire of the Saffanides in Perfia,
Yermuk, in Syria, where the Saracen general Khaled totally defeated the Greeks,
Fontenay, in France,
Hatsings,
Alcant in Palatine, between the Croises and the Saracens,
Bouvines,
Ottrar in Tartary,
Of the Indus, between Genghis Khan and Jalala'ddin,
Bannewch, near Paris,
Cressy,
Poitiers,
Angouleme, between Bajazet and Tamerlane,
Agincourt,
Tournay,
Boisworth, between Henry VII. and Richard III.
which finished the war between the houses of York and Lancaster,
Flooden,
Marignano, between Francis I. and the Swifs,
Pavia, between Francis I. and Charles V.
Mohatz in Hungary, which decided the fate of that kingdom
S. Quinvin,
Nespoj, by prince Maurice over Albert,
Prague, by the duke of Bavaria over the Elector Palatine,
Leipzig, by Gustavus Adolphus over count Tilly,
Lutzen, memorable for the death of Gustavus Adolphus,
Nordlingen, where the Protestant league in Germany was totally defeated,
Breitenfeld, near Leipzig,
Edgcorth,
Rochroy,
Nalby,
Jancowitz,
Worceder,
Before Vienna, which was relieved in consequence,

147
166
105
102
101
86
85

Bojne in Ireland,
Fleurus,
Staffa, in which the Savoyards were defeated by
Catinat,
Salankemen, where the Turks were totally defeated by
prince Lewis of Baden,
Aghrim in Ireland,
Steinkirk,
Landen,
Zenta on the Tisibe, memorable for the total defeat of
the Turks by prince Eugene,
Narva,
Chlou,
Hochteut,
Ramilles,
Turin,
Almanza,
Pultowa,
Malphequet,
Denain,
Peterwaradin,
Belgrade,
Parma,
Quatalla,
Molowitz (the first defeat given to the Austrians by
Frederick III.),
Czabo,
Fonctenoy, a memorable battle,
Friedberg in Silezie, where the king of Prufia totally
defeated the Austrians,
Rotto-fredo in Italy,
Culloden,
Kolin (the first defeat sustained by the king of Prufia),
Plafay, which laid the foundation of the future power of
the Britifh nation in Bengal and Hindoostan,
Roffax,
Breilaw,
Liife,
Zorndorff (in this battle the king of Prufia totally
defeated the Russians with terrible slaughter),
Hochkirchen,
Minden,
Cummerdorff (the king of Prufia here sustained a com
plete defeat from the Russians),
Torgau,
Freyberg, decisive of the seven years' war,
Chozzin,
Pozzan,
Jenampe, in which the Austrians were defeated by
Dumouer, and lost in consequence all their posfes-
sions in the Netherlands,
Tirlemont, where Dumouier was defeated by the prince
of Saxe-Cobourg, and the Netherlands subfequently
recovered,
Between Dietz and Louvain, fought by the fame
generals, with fimilar fuccefs,
Hagueenau,
In the neighbourhood of Landau (the Austro-Prufian
army was almoft destroyed by the republican generals
Hoche and Pichegru), from the 22 to the 27 Dec.
Mouconn (Gen. Clairfart was again defeated by Pich
chegru),
Fleuris (the prince of Cobourg was defeated by Jour
dan. This battle ultimately decided the fate of the
Netherlands),

30 March, 1714
6 May, 1742
39 April, 1745
25 May, 1745
31 May, 1746
16 April, 1746
6 May, 1757
18 June, 1757
29 Oct. 1762
30 April, 1769
1789
6 Nov. 1792
18 March, 1793
22 March, 1793
8 Dec. 1793
26 June, 1794
BATTLE.

Lille, between Jourdan and Clairfait, 17 and 18 Sept. 1794
On the Reck between the fame generals, (Gen. Clairfait
was overthrown in both these actions.) 1st to 3d Oct. 1794
Montenotte, 10 April, 1795
Milleisimo, 17 April, 1796
Dego, 18 April, 1796
Bridge of Lodi, 11 May, 1796
Ettingen, 9 July, 1796
Near Nuremberg, 22 Aug. 1796
Calligbhe, 15 Aug. 1796
Roveredo, 4 Sept. 1796
Areal, 5, 6, and 7 Nov. 1796
S. Marc, 13 and 14 Jan. 1797
Before Mantua (Gen. Provera and his whole division
laid down their arms), 16 Jan. 1797
On the Tagliamento, 16 March, 1797
Tarvis, 23 March, 1797
Stokach, 25 March, 1799
Verona, 26 and 30 March, 1799
Magnan, 5 April, 1799
Of the Adda, 27 April, 1799
Zurich, 4 June, 1799
On the Trebia, 17, 18, and 19 June, 1799
Novi, 16 Aug. 1799
Zurich, 23 Sept. 1799
Engen, 3 May, 1800
Morich, 5 May, 1800
On the Rift, 9 May, 1800
Ulmm, 21 May, 1800
Marango, 14 June, 1800
Hohenlinden, 3 Dec. 1800

The chief view of the great commanders of modern times
has been, till of late years, rather to harass, or flave an
enemy, by frequent alarms, by cutting off his supplies of
provisions, carrying off his baggage, seizing his polls, &c.
than to take their fortune and reputation on the event of a
day; a battle generally deciding the fate of a campaign, and
not unfrequently of the war. It is therefore a rule never to
venture a general action without important reasons, or when
absolute necessity leaves no other choice.

Reasons for feigning and engaging the enemy are, a de-
cided superiority in number or quality of forces; discord
among the commanders of the opposite army, when actuated
by different interests; an obvious incapacity on their part,
demonstrated by a neglect of the ordinary precautions in en-
camping, or on a march, the necessity of relieving a con-
durable place befieged by the adversary; an apprehension
of the total ruin and dispersion of an army, unless prevent-
ed by success in a general engagement; an intelligence of
reinforcements coming to the enemy, whose junction
would render him superior, and change the state of affairs; a par-
ticular advantage obtained in some preceding action, which,
however indecisive, has given the enemy a smart check, and
produced an evident superiority; or in fine, the obligation of
putting all to the risk of a battle.

The most proper reasons for avoiding it are; the having
left to hope for from a victory, than to fear from an over-
throw; inferiority, either in number or courage of the
Troops; an expectation of fresh succours, or the junction
of a considerable detachment; the impossibility of bringing
the enemy, too advantageously posted, to an engagement
in fair terms, or of forcing him in his entrenchments; or the
prospect of losing his army by temperament, and de-
ceiving battle. See Action.

But a resolution to engage being once taken, in con-
sequence of one or other of the reasons above recited, the next
object to be considered is the means of carrying it into ex-
ecution with the strongest presumption of success. Those
measures are partly preparatory to the affair; but the most
important and essential chiefly take their rise out of the dif-
terent circumstances of the action itself, and are those which
almost always determine its success.

Preparatory to fighting, a general should carefully observe
the following particulars. He should form the order of bat-
tle according to the strength and quality of the troops of
which his own army is composed, always having an eye
towards counteracting the dispositions in which it is ex-
pected to find the enemy. The general officers should be
assigned their respective posts, and copies of the order of
battle carefully sent to such as have a separate command,
who must be responsible for its observation in every respect.
All the troops must be perfectly armed and equipped; the
proper number of cartridges distributed previously to the
battle; waggons loaded with ammunition, and arms stan-
tioned in the rear of these battalions, which, it is presumed,
will have the hottest fire to fielain; and a fresh reserve pro-
vided at the park of artillery; as well to give out before and
during the action, if wanted, as after it is over, when there
are generally many missing. Time, if possible, should be
allowed to the troops to rest and refresh themselves, before
the engagement. Physicians, surgeons, and medicines must
be provided, and rather more in number than may be deemed
barely sufficient. The army must be totally difcumbered
of the heavy baggage, and the remainder lodged in a
place of safety at some distance. The advantages of sun
and wind, however trivial, are not to be neglected. The
soldiers should likewise be inspired with the desire of
fighting, and a certainty of victory; inflamed with the hope
of plunder and good quarters; and the officers reminded
of glory and of rewards.

Those occasions of conquering which commonly only pre-
fent themselves on the day of battle are, taking advantage
of the ground; strict observance of the disposition already con-
certed, and, should a correction prove necessary, the making
of it without confusion, and with the knowledge of all those
officers, who, from their situations, should become apprised
of it. The artillery is to be planted along the line, accord-
ing to the nature of the country; and every opportunity
narrowly watched of gaining an advantage, either by ex-
tending the wings to turn, if possible, the flanks of the
enemy; or by closing and protecting, to draft sufficient
Troops from them for a grand attack where the enemy may
appear most feeble. Should the march to the enemy be
made by night, or little probability offer of finishing the
contest before dark; the word should be given to the whole
line before they march. If the advance is made in line, due
care should be taken to preserve the equality of the wings,
and the requisite distance between the lines; frequent halts
should be made to give the artillery time to fire and load,
and the ranks to recover their order. Frequent warnings,
above all, should be given the soldiers to receive the
enemy's fire, and almaid from returning it till they have
drawn their adversaries' ammunition from them: for troops
who have parted with their fire will most infallibly give way
on facing an opponent advance, ready to pour in a heavy
volley upon them. If, however, both parties pursue the
same maxim, the only expedient is, to march up close to the
enemy, give in a general discharge upon them, and prevent
its being returned by immediately having recourse to the
bayonet, under cover of the smoke, which seldom fails to
produce an important effect.

If the advancing army, by reason of the distance it has to
march, or the inequality and close nature of the ground, or
defies, it must pass, cannot come at the enemy in front, the
approach must be made in a sufficient number of columns, to
admit the formation in order of battle, out of distance of be-
ing charged when in column. The general officers who conduct their columns should also carefully observe the motions of each other, so that the heads of their divisions may at least preserve a front; and that, when arrived at the ground where the army is to deploy into line, the movement may be executed with dilligence and caution, and at too great a distance to be attacked by the enemy before all the battalions are drawn up in the preconcerted order.

The commander in chief should post himself where he may be felt and most conveniently remark the effect of the first charge, and whence he may with the least difficulty differ his orders, either to sustain the troops who may have broken the enemy, or to replace such as have themselves been thrown into disorder. For both these purposes he should make use of the supernumerary forces stationed between the two lines, or of those of the reserve, as he may judge most advisable. Every other general officer should be at his particular station, either to lead to the charge, or to remedy the disorders which may arise in the brigade entrusted to his command.

If the battle becomes general and bloody, and successes in- cline to neither side, the commander in chief should direct his principal effort against that part of the line where the enemy's resistance is most obstinate; and in this case he should himself hasten to the spot, to animate the troops by his presence, and induce them to charge, under his eye, with greater vigour. If successes are complete throughout the first line, and it entirely overthrows that of the enemy, the principal attention of the general, and of the other officers, should be employed to restrain the soldiers, prevent them from leaving their colours to follow up the flyers, and, committing the pursuit to some detached corps of cavalry and infantry, to march in good order, at a steady pace, to infatiate these detachments, and assail the second line of the enemy. The artillery should always accompany the first line, in the order already distributed, in case the nature of the ground allows of it. The remainder of the army should follow the movement, always observing, without confusion, the distance be- tween the two lines appointed by the order of battle.

Should the first line give way, or be thrown into disorder by the enemy, the battalions are to retire through the intervals left between the two second lines, behind which they are to halt and rally. Great care is here necessary to be taken by the officers, that instead of pausing through the intervals, the routed troops do not directly run in upon the ranks of the second line, and either carry them off in the gen- eral flight, or throw them into such confusion and disorder as it may be impossible to repair before the enemy are upon them.

On the first line's giving way, the second should march up briskly to its relief, and charge furiously upon the enemy without giving him time to repair the disorder into which the action and pursuit milt of course have in some measure thrown him. By executing this with promptitude and determination, it is often easy to retrieve the ground which has been lost, and to defeat and render useless the enemy's first line, already considerably weakened and deranged by the former attacks. It is the sooner effected, as the enemy's fire which does most execution is thrown away; the subsequent discharges, from the great hurry of loading, being of little consequence, in comparison with the first. The great mischief is, that the second line, on seeing the first give way, are usually struck with a panic which magnifies the enemy, and on his nearer approach, either betake themselves to flight, or make but a faint resistance.

If, on the other hand, the victory still remains constant, and the adverse second line is overthrown, the general is chief should use still greater care than formerly to prevent his fol-
order to accommodate the enemy if he form the siege; or keep him in awe, and prevent him from dividing his forces, if his object is only to penetrate into the country, and lay its under contribution.

If the conqueror, on account of his loss in the engagement, finds his industry too much weakened to undertake a heavy siege; should he be disabled from attempting it for want of heavy artillery and ammunition; or should he derive no other profit from his victory than that of discovering his enemy's projects, remaining master of the open country, during the rest of the campaign, or procuring his men quarters upon hostile territory: the vanquished general ought after the full retreat, to occupy a defensible position in the vicinity of some large town, whence he may procure those accommodations his defeat may have deprived him of: such as, records and medicines for the sick, fresh baggage in lieu of the loot, &c. He should encourage his troops, without again facing the conquerors till he has repaired his losses by the arrival of new factions, new arms, fresh ammunition, and artillery, has cured the wounded, and finds himself strong enough to oppose the enemy, and prevent his establishment in advantageous quarters.

Island, Military Discipline.—Memoire de Feuquieres, ch. xx.

Battle was also a term formerly used to denote a body of forces drawn up in order of battle, and amounts to the same with what is otherwise called Battailon.

In this sense, we meet with the length or depth of the Battle; the front, rear, and flanks of the Battle.

Battle, length of the, is the number of soldiers in rank, or the front from the left flank to the right.

Battle, depth of the, is the extent of a file, or number of men from front to rear.

Battle, line of, See Line.

Battle array, the same with order of Battle.

Battle, order of, signifies the disposition of the squadrons and battalions of an army, into one or more lines, according to the nature of the ground, either for the purpose of engaging an enemy, or being reviewed by the general.

The Egyptians, whose priority in civilization and in communicating the arts to the rest of mankind is universally allowed, were naturally, although they ranked many great conquerors among their rivals monarchs, a pacific nation. We have no authorities to enable us to judge of the progress they had made, in the art of war; but from the fanciful account of the battle of Thymbra, given by Xenophon in his Cyropedia, we may fairly presume that they usually fought in large and deep battalions, forming a complete square. On the above occasion he mentions twelve of these unwieldy bodies, each consisting of ten thousand men, and who formed the chief dependence of Cyrus against the army of Cyrus.

A people in particular favour, and protected by heaven, as the ancient Jews, little needed the assistance of human invention when, on any emergency, a new miracle was always ready to relieve them against their enemies. We find, therefore, nothing in the sacred histories that can give us a key of any order of battle observed among them; although the regular division of their numerous forces under David, who distributed them into twelve unities bodies according to their tribes, and each of these into thousands, or regiments, into his bands or companies, into two, and even into four, and even to imagine, that they would not entirely forget matters in the field. The Jewish writers, followed by the author of the "Dissertation sur l'histoire de Palestine," affirm, that they armed them among the heathen, in considerable depth, for troops between twenty and thirty in life. Along the front of these were placed the light armed men, viz. the most expert archers, javelin men, and slingers, who began the onset by a withering shower, and with casting thick showers of darts and stones against the enemy's front, in order to cause terror and confusion, and stop the rushing in of the chariots, which among the Carthagians were extremely numerous, by wounding the horses and drivers. This is the more probable, as it is a method common to most of the Asiatic nations. Avoc. Univ. Hist. vol. iv. p. 94. The order of battle described by Xenophon in Cyropedia to have been used by Cyrus, at the action of Thymbra, though perhaps a visionary one as applied in the text, may serve to give an idea of the method generally used by the ancient Persians in drawing up their armies, with which Xenophon must have been well acquainted. The cavalry, in the direction which it is indispensably necessary for them to observe, were posted on the sides. The heavy armed infantry, carrying, besides the pikes, a sword for close combat, and drawn up twelve deep, formed the first line. The second consisted entirely of light armed, who threw their darts over the heads of the former, and annoyed and disordered the enemy in their approach. The third line, defined to the same purpose as the second, was composed entirely of archers; their bows which were extremely well bent and strong, carrying far beyond the front ranks, so as to excessively incapacitate the enemy. With these were sometimes intermixed slingers, who threw large stones with great effect. For this purpose the Rhodians afterwards substituted leaden balls. The fourth line, consisting of heavy armed, and similar to the first, was intended to support the preceding ones, and prevent them from giving way. It also served as a rear-guard and a corps-de-reserve to repulse the enemy who should penetrate so far. The Persians also made use of movable towers, erected on large carriages, each drawn by sixteen oxen, and containing twenty men, who threw stones and darts. These were placed in line in the rear of all the army, behind the corps-de-reserve, and favoured the rallying of those troops which were pulled and thrown into confusion by the enemy. They placed likewise great reliance in armed chariots, which they drew up sometimes in front of the battle, and sometimes upon the flanks, when in fear of being enveloped.

Such was the extent of the military science of those nations, who under Xerxes threatened Europe and the Weft with subjugation. But we see no occasion on which they knew how to profit by the advantage of the ground to carry the war, when necessary, into a difficult country, to make use of defiles and ambushes, either for the purpose of covering themselves from the attacks of the enemy, or of annoying them on his march; or to protect an unequal campaign by avoiding a decisive action with a superior antagonist, and reducing him to distress for want of forage and ammunition. Neither do we observe that they paid the requisite attention to the supporting of their flanks, by river, morass, or height, when it would have been advantageous by giving them an equal foot to an army much more numerous, and putting them out of danger of being surrounded. Rollin, Hist. Antiqu.; liv. iv. ch. 4.

The Persians made some alterations in this system; but they were far from being judicious. Artaxerxes's Memnon at the battle of Cunaxa, threw all his forces into one line, for the purpose of surrounding or outflanking those of his brother Cyrus; but he preferred the clumsy order of square battle, whose unavoidable form must have been impossible for them to take advantage of a terrain with the necessary promptitude, to retreat with facility, or manoeuvre with any effect. The disposition of Memnon the Rhodian, in opposing the
The passage of the Gracianus by Alexander was less faulty. He formed two lines; the irit of cavalry to affail and disorder the Greeks as they attempted to gain the bank of the river; and the second, at some distance, of infantry, with the intention, no doubt, of supporting the first; but, however judicious this arrangement might have been, he wanted genius or inclination to profit by it, and tamely suffered the Macedonians to reach the shore, defeat the cavalry opposed to them, and form their phalanx unembittered for the attack of his heavy-armed foot, without driving from his position, or calling a single javelin. It is impossible to read, without indignation, the unfoldlike details of the pompous march of Darius, and the extremity, as well as ignorance, conspicuous in the order of battle he made his armv observe at Hiss and Gygargela. His awkward evolutions on the former occasion, disordered his forces before the commencement of the action. In the latter instance he preferred the ruimous arrangement of his infantry by nations, in huge square battalions; he intermixed with them corps of horse no less unwisely; and, not content with having committed faults so inexcusable, he surpassed them both by another. The nature of the ground, not allowing his immense army to extend itself upon a single front, seemed to point out the necessity of a second line, or at least a corps-de-reserve. He indeed drew up, behind his centre, several immense battalions for which he had no room in front; but to clothe the first line, that when these gave way, the reserve, instead of supporting, served only to augment their disorder. Against such an enemy, it is by no means surprising that Alexander should have been, with inferior forces, so completely successful. Xenoph. Anat. lib. i. Arrian. in vit. Alex. lib. i. & iii.

We now turn to the Greeks, who, of all people of antiquity, the Romans excepted, were the best judges of warlike affairs and military conduct; but we cannot easily excuse them for the oversight they almost constantly committed in the drawing up of their whole army on one front, and trusting to a single effort the success of the day. Their infantry consisted of two kinds of soldiers. The heavy armed, who carried large bucklers, lances, and swords, and in whom consisted the principal strength of the army; and the archers and slingers who were generally distributed along the front of the line, and employed their bows, darts, and arrows, to disorder the ranks of the enemy. Having made their discharges, they retired round the flanks into the rear of the heavy armed, whence they continued throwing their darts during the rest of the action. As for the heavy armed, or Hoplites, we shall follow Thucydides in describing their disposition, according to the Lacedemonian system, that nation being then reckoned the most expert among the Greeks in military knowledge. Their battalions consisted of four lesser divisions, each consisting of 125 men, and subdivided into four others, each of 32 men. The effective force of every large corps thus consisted of 512 soldiers, who were usually drawn up in smaller ones of four men in front, and eight in file. We find seven of these regiments engaged at the first battle of Mantinea, during the Peloponnesian War. The depth of the files was, however, often altered, when judged necessary by their commanders. The Lacedemonians never made use of cavalry before the Messenian war, on which occasion they were convinced of the impracticability of carrying on their operations in a flat country without it. Even then they rarely exceeded the number of six hundred, and these were chiefly composed of the inhabitants of a little district in Laconia called Sciritis, a circumstance from which they derived their appellation of Skirmites. They were always drawn up on the left flank of the army, a part they claimed by right. So aversely were the Greeks in general to the use of cavalry, that in the most flourishing periods of the Athenian republic, they never mustered above 1,200 in their army.

The Greek tacticians of the middle ages have hallowed their imaginations in forming fanciful orders of battle, principally for the cavalry. Minute geometers and theoretical folders, they have considered the art of war in a light entirely mechanical; and employing their pencils at random, have given us upon paper such plans and dispositions as only could exist in their own minds, and could only originate in their ignorance of the practical part of the science. It is hence we derive the thumb, the wedge, the oblongal, and angular manner of disposing their forces, manoeuvres perhaps of use in exercising a squadron, but not to be adopted in the field without eminent and inevitable danger. To form a proper estimation of ancient tactics, we should consult the writings of those celebrated characters, who only recount what they have in person seen, and themselves performed. Such are Xenophon, Polybius, Julius Caesar, and Arrian. In reading them we trace the military art among the ancient Greeks and Romans to its highest pitch of perfection. The principal offensive and defensive operations of a campaign in the open country, or of a siege, are developed with order and perspicuity, and the images they present to us are distinctly imprinted on our imagination. Thucyd. lib. iii.—Rollin, Hist. Anc. liv. x. ch. 2.—Potter, Archetol. tom. ii. lib. 3. ch. 9.—Elian. tact. ch. 18.—Guizac. Memoires Milit. in difc. prelim.

Philip and Alexander put the last hand to improving the order of the Greek infantry in the creation and establishment of their formidable phalanx. For a particular account of its formation and evolutions, we must refer the reader to the article PHALANX. For several ages, this was the order of battle which most prevailed among the nations of the then known world. The Carthaginians, the Syrians, the Egyptians, adopted its use. We find the generals of Mithridates employed it against Silla, and the barbarous Helvetii and Germans in their contests with Julius Caesar. But the difficulty of preferring the necessary union and order in so large and numerous a body; and the want of a second line to support it when obliged to give way, were glaring defects in its disposition, and it was therefore eventually forced to give place to the more convenient and scientific arrangement of the Roman legion.

A Roman legion arranged in order of battle, consisted of thirty manipuli, of various strength according to the establishment of the legion. Supposing it of 5000 men, each manipulus of the Haistati and Principes was composed of 140 folders;—those of the Triarii only of 60; the remnant of the troops were Velites, or light armed. Livy, in describing the war with the Latins, gives the following account of the ordnance of the legion. The Haistati, drawn up in separate manipuli, formed the first line. The Principes, chiefly old experienced folders, were placed behind the former, but with intervals between their companies sufficiently wide to receive the Haistati in case they should be obliged to retreat. The Triarii, all veterans, who besides the short sword common to all the legionaries, were armed with long pikes, composed the third line; their intervals being so extended as to enable them to receive both the Principes and Haistati within them without any disorder, and still facing the enemy. If therefore the Haistati found themselves unable to sustain the charge, they retired gently within the Principes, and joining with them, renewed the combat. If thev proved too weak for resistancc, both retired amid the Triarii, where rallying, they formed a new line, and charged with more vigour than ever.
BATTLE.

If again defeated, the battle was lost: the Romans had no further resource. Livy, lib. viii.—Machiavel, art. c. Giver, lib. ii., ch. 1.

Their successive retreats are no where mentioned except in Livy as above related; and prejudiced as we are in favour of the military science of the Romans, we find it difficult to conceive the practicability of their execution. Livy has, in fact, much mistaken the intention of the disposition in quinquennalia of the ancient legion. Its sole design was to enable the army to form with facility in that order of battle which the situation of the enemy, or nature of the ground, might render most applicable. At the moment which preceded the charge, the maniples of the second line, marching briskly up into the intervals of the Hastati, formed a continued front, ten files in depth, and equal to that of the enemy. The Triarius remained as a corps-de-reserve. It was thus, as we shall incontestably prove in our account of those actions, that the Roman infantry were arranged at the Trebia and at Casae. It was thus, with some little variation, that they fought at Zama. Neither was it unusual with them to dispose their maniples according to the principles of the column, as in the battle of Tunis, and that between Scipio and Asdrabul the son of Gisco, in Spain. Where there was but little to fear from the impetu of the enemy, the intervals of the Hastati were filled up by the Velites; the Principes remaining at their posts in a second line; but, opposed to the close and heavy order of the Macedonian phalanx, a directly different disposition was observed. The maniples of each line, preserving their intervals, and acting as separate corps, harassed the enemy by defunctory attacks, obliged them to abandon their united order, in which situation only they were invincible, and penetrating the phalanx in every direction, obtained an easy triumph. Guisicart, Memoires Militaires, ch. iv.

As to the Velites, and in later times the archers and slingers, they were not drawn up in this regular manner; but detached either before the front of the Hastati, or scattered up and down among the void spaces of the first line, or finally, placed in two bodies on the wings. These always began the battle, skirmishing in flying parties with the foremost troops of the enemy. If they were repulsed, which was usually the case, they fell back to the flanks of the army, or retired through the intervals into the rear. When they retreated, the Hastati advanced to the charge. The auxiliary forces generally composed the two points of the battle, and covered the whole body of the Roman infantry. As to the cavalry, it was posted on the wings, fighting sometimes on foot as well as on horseback; and here we find some reason to arrange the judgment of the Romans, who never allotted a proportion of more than 300 cavalry to each legion whatever might be the nature of that country which was the theatre of the war. They made no difference between the plains of Lombardy and the mountains of Liguria; and in the Alps maintained the same number of squadrons, as in the fertile valleys of Apulia.

But the order of battle in quinquennalia was in process of time abandoned by the Romans. The tactics of Caesar widely differ from those of Scipio and Flaminius Paulus; and the march and order observed by Metellus in his Numidian war against Jugurtha, transmitted to us by Sallust, are the last traces we find in history of the disposition which proved so fatal to Hannibal, to Philip, and to Perseus. The maniples with interval; the three lines of Hastati, Principes, and Triarii, differing in arms, and in numbers, disappear, and about the age of Marius, the legion assumes a new form. Instead of thirty companies, we then find it divided into ten cohorts, equivalent to our battalion; from these each consisted of from five to six hundred men, drawn up in a single line, with a depth of eight or sometimes nine in file. The legions of Tiberianus, according to Jucundus, were drawn up in deep. This last arrangement continued to be observed without alteration during the flourishing ages of Rome; but as we advance nearer to modern times, we perceive their military force to decline in its perfection, in proportion to the decay of their greatness. Under Leo and Mauritius it is as difficult to recover the tactics, as the empire of the Caesars. The difficulty of ascertaining the period of their successive alterations has deterred those authors who have been most capable from undertaking the office; and finding it easier to suppose that Livy and Plutarch have furnished us with sufficient information on the subject, they have concurred with those writers to mislead and perplex us.

Cæsar.—Joseph. de Bello Jud. Guisicard. prel. d'irc.

For further observations on the discipline and constitution of the Roman infantry, see the article Legio.

For a long succession of barbarous ages, we find nothing to interest us in military tactics. Imitating in a rude degree the order of battle pointed out to them by their ancestors, the western nations from the fifth to the fifteenth century, fought in large bodies, divided into an indefinite number of lines or armies, in every one of which the infantry, interior in strength and importance of service, composed the centre, flanked by the heavy armed cavalry, who always decided the fate of battles. It is in vain to search for military science in these periods, and we shall therefore pass them over with all possible rapidity.

The introduction of artillery and fire-arms necessarily introduced an alteration in this system. The cavalry ceased to be the arbiters of success, and declined rapidly in their importance. The destructive effect of the newly invented engines rendered it impossible to avoid making a material change in the order of the battalions. Their depth was gradually decreased. The method of engaging in wards was abolished, as exposing numbers of troops to be sacrificed without occasion; and two lines with a corps-de-reserve were in time thought quite sufficient for the purpose of action. The front of the army was proportionally extended, and embraced a greater extent of country. The advantages of ground, before judged in comparison trivial, were now eagerly fought after. Generals became from necessity tacticians, and by little and little, continually improving, sometimes slowly, sometimes with rapidity, the military art assumed the face it wears in our times; under the auspices progressively of a Gustavus, a Condé, an Eugene, a Marshal Saxe, and a Frederick the Great, whose many names will never be forgotten by the latest posterity.

Under the articles Columns and Line, to which they of right belong, we shall attempt to illustrate and compare the French and Prussian systems of the order of battle as now practised by both these nations; and accompany them with inferences from among the number which have of late years fallen under our inspection.

BATTLE, in a Naval sense, denotes an engagement between two fleets, squadrons, or even single ships. See Engagement. The ancients had divers forms of sea-battles; as the half-moon, circle, and squares. In all these, not only the ships engaged each other, and by their beams and prows, but sometimes their sterns terminated to death by pieces, or overlapped and took each other, but the holdiers also assaulted the enemy with darts and slings, and, on their nearer approach, with hand and spear, boarding each other by latching bridges between the ships. By way of preparation they took down their sails, lowered their masts, and secured whatever might expose them to the wind, choosing rather to be governed by their own.
Homer never affixes this weapon to any but the barbarians, for the battle-axe was not used in war by the politer nations. Euthathius tells us, it was the favourite weapon of the Amazons. The only instance where Homer has placed it in the hands of a warrior occurs in the thirteenth book of the Iliad, when Pifander fights Menelaus; it is there called Aβoς, and is described with singular minuteness.

The Plataeis, mentioned in the fifteenth book, 1.710, was perhaps not very different:

\[ \text{Aλλος πολεμός ἔργῳ, τοσό ηόσιος εἴσεβος} \]
\[ \text{Oβως ἐν ἀγάλματι, καὶ ἀβως χειρόν.} \]

The battle-axe, an ancient military weapon, which, at different periods, formed a principal part of the offensive armour.

At the siege of the Roman capital, by the Gauls under Brennus, we find one of the most distinguished warriors armed with a battle-axe (Plut. Camillus): and Ammianus Marcellinus, many centuries afterwards, describing a body of Gauls, furnishes them all with battle-axes and swords. From Tacitus, it should seem, the ancient Germans had clubs, but no such weapons as those we are speaking of: and the only instance in his writings where fecuritas occurs as an implement of combat, is where the Othonians are particularly described as striving on the helmets of their antagonists with their axes. (Taciti Hist. II. xii.) In short, it was even then never used but among the Roman auxiliaries.

The introduction of the battle-axe into this country has been frequently attributed to the Danes; but proofs of its earlier use among us are not wanting, and there are instances known where it has been found even among the sepulchres of the ancient Britons. Mr. Rooke, in the Archaeologia of the Antiquary Society (vol. x. p. 113.) has described a fragment of an ancient battle-axe found among some Druidical remains in a barrow at Alpatria in Cumberland, June 1789. And in the same volume (pl. xi.) are two representations of the old Galwegian hill, or battle-axe, found in a mofs near Teesdale, the seat of Marmaduke Maxwell Constable, esq. of Nethdale in Ireland. Others have been found among the barrows on the downs of Wiltshire, and in the north of Scotland.

That it was used in the early Saxon times, we have the authority of several manuscripts of the ninth century; and the French writers have recorded a particular instance of its use in France, so far back as the year 510. Clovis, they say, bribed the ministers and captains of Ragnacharius to deliver up both him and his brother: and when the prisoners were brought before him, he first reproached them for suffering themselves to be chained, and then dispatched them with his battle-axe. See Grot. Turon. I. ii. c. 42.

The battle-axe, however, was more used by the Danes than any other of the Northern nations: and they were, in course, more expert with it. At the battle of Stamford, Oct. 24, 1066, between Harold king of England, and Harold Harfager of Norway, when the Norwegians were obliged to retire, and the English began to pursue them with great eagerness, a total stop was put to their pursuit for several hours by the desperate boldness of a single Norwegian, who defended the pass of Stamford-bridge with his battle-axe; he killed more than forty of the English, and was himself slain only by fratagem. (Hen. Hunt. iv. p. 211.) The battle-axe principally in use among the Anglo-Saxons appears to have been the lopenisses, or double-edged axe; the giparme is supposed to have been the bipennis with a longer handle or halbert; and the pole-axe, with an edge on one side, and a sharp point on the other, probably came in with the Normans.

During the middle period of our history we read but little of this weapon, though the Welsh infantry at the battle of Agincourt, 1415, found it particularly serviceable in dispatching those whom the archers had wounded with their arrows. One of the last instances of its effectual service was at the battle of Tewksbury, during the quarrel of the Roses, when the duke of Somerset clave lord Wenlock's head.

Towards the sixteenth century, it seems to have been gradually disused, though one instance occurs where a pillow placed in its handle befits a with in the warriors of that period to improve its use. (See Arms.) It was perhaps most serviceable when our knights were completely armed, and has since degenerated into the halbert or partisan.

BATTLEMENTS, in the Military Art, indentures, or notches in the top of a wall, parapet, or other building, in form of embrasures, for the fake of looking through them, &c. much affected in the old fortification.

BATTIOCHES, or BATTOGUES. See BATTACKS.

BATTLEY, from βάτος, battus, babbler, and ἄρχε, I speak, in Grammar, a multiplying of words without occasion, or a needless and superfluous repetition of the same words, or things.

BATTONI, or BATONI, POMPEII, in Biography, an eminent Italian painter of the Florentine school, was born at Lucca in 1708. He was the son of a goldsmith, and brought up to that business; but discovering a strong predilection for painting, he was supported in the Roman school by a subscription; and at Rome he employed himself in studying the antique, and copying the works of Raphael, and likewise in forming a style of his own, from a diligent observation of nature. Having distinguished himself both as a designer and a colourist, he was engaged in the execution of many important works, and painted altar-pieces and other pictures for various churches in Rome, Milan, Brescia, Lucca, Parma, Melfina, and other cities; as well as history-pieces for private persons. One of his most admired works, is a holy family, purchased for a large sum by the grand duke of Tullin. Battoni, however, acquired his principal fame as a portrait painter. Besides three popes, he painted several of the Imperial families of Anfraria and Tullia. In recompense for a picture, which commemorated the infant view of the emperor Joseph with his brother at Rome in 1779, he received several magnificent prelates; and he, with all his male issue, was ennobled by the emperor. By the beautiful daughter of the surveyor of the Farneese palace, whom he married in early life, he had several children; and two of his daughters were highly celebrated for their talents and proficiency in music. As to his character, he was simple and modest, sincere, friendly, and charitable; much attached to religion, and very affiduous in the exercise of his profession. He seldom appeared in public, preferring a retired life, partly on account of the defects of his education, and partly by reason of the awkwardness of his figure, which approached
proached to deformity. As a painter, he acquired eminence by the native force of his genius, and he had no rival but Mengs, who surpassed him in knowledge and learning, whilst he was inferior to him in natural talents. Battutin, having completed his 75th year, died 1777. Pilkington. Biog. Dict.

BATTON, or BATTIN. See BAXTON.

BATTIN, a name given by the Ham Lucas to their magazines or pictures abroad; the chief of which are those at Archangel, Novgorod, Bergens, Luton, Venice, and Amsterdam.

BATTOW, in Geography, a village on the west coast of Africa, S. E. from Cape Cavallou, on the west side of a small river opposite to Zee, or Swino, on the east side. About half a league east are two rocks lying under water, and the breakers over them are seen at sea at the distance of a league, and serve to point out the Cape and Road.

N. lat 77. W. long. 30° 30'.

BATTUE, in Measure, Fr. to heat time, in Music. There are various ways of marking the measure and accents in music: by dividing each bar into 2, 3, or 4 equal parts with the motion of the hand, the foot, a baton, or a roll of paper. In common time of 2 minims or 2 crotchets in a bar, called binary measure, the hand is merely moved down and up. In time of 4 crotchets in a bar, the French frequently mark each portion of it, by lifting the hand down to the first crotchet, moving it to the left for the 2d, to the right for the 3d, and lifting it up for the last. In triple time, or ternary measure of 3 minims, 3 crotchets, or 3 quavers, it is usually beaten, 2 down and one up, or the 1d down, the 2d to the left, and the 3d up.

The beating time is of great antiquity. The ancient Greeks had various ways of regulating the accents of song, and steps of the dance. See Rhythm and Greek Music.

The Italians often beat the two first portions of a bar, and left the hand up for the rest, both in common and triple time.

At the Opera, concert-spiritual, and even at private concerts (formerly) there was a perfon at Paris, armed with a truncheon (襄or de mEias) like a general, whom Rouleau, in his Dictionary, ridicules, and says that he had been very aptly called the Buckler, or wood-cutter; though when he wrote his musical articles for the Encyclopédie, the Italians and other nations, fell had a manner to regulate the measure in the numerous hands employed in their churches when there was a grand Pas de deux in celebration of some feast or holy time. But it was at the Church at the Commemoration of Hamel in Wellesley Abbey, that in the most numerous band that ever was assembled in modern times, a Coryphæus was first dispensed with. See Time, Measure, Ars & Thes. Bar, Accent, & Battus.

BATTUS, LAVIN, in Baxton, was born at Ghent, about the year 1549; but his father being obliged to remove to Rochou, on account of the troubles there, he was sent to a master who placed him under the instruction of a musician, and he so well pleased by the master who received him, that in 1559 he was appointed teacher in mathematics. In this office he continued until the year 1565, when the country being once afflicted with wars and the plague, he went first to Padua, and then to Venice, where he was admitted doctor in medicine. Returning to Rochou, he practised medicine with so much success and reputation, that he was appointed professor in that faculty, in which post he died, April 1591. Some small musical tracts, left by him in manuscript, were published in the Magacinel of Henry Sorelli, at Frankfurt, 1611, 8vo. His son, Conrad Battus, following in the steps of his father, returning from his travels, took the degree of doctor in medicine at Bâle, in 1643, but falling down stairs, at his brother's house at Rochou, soon after his return there, he received a wound in his groin, from a knife he had in his pocket, which occasioned his death. He also left some short essays on medical subjects, which were published with his father's, in the Miscellanea.

BATTUS, CHARLES, a Flemish writer of some eminence, who flourished about the end of the 16th century, published in 1566, a translation of the works of Guillemin, into his own language, folio, Dordrecht, and in 1615, the works of Ambrose Para, folio, Amsterdam, with numerous plates engraved on wood; also a manual for surgeons, with a treatise on wounds of the head, from Hippocrates, 2dmo. Haller. Bib. Chirurg. Elov. Dict. II. il.

BATTUS, in Ecclesiastical History, an order of pensioners at Avignon, and in Provence, whose piety carries them to exercise severe discipline upon themselves, both in public and private.

BATTUSZANI, in Geography, a town of European Turkey, in the province of Moldavia, 44 miles N.W. of Jaffy.

BATTUTA, It. a bar in Music, or those portions of a musical composition, where the time is beaten, or marked, with the hand or foot. The Crucefa dictionary defines battuta, quella misura di tempo che da il maestro della musices, in battuta al cantori. Varchi, who died in 1566, and who is quoted in the Crucefa as authority for the use of this term, says: quota noia, e falsidao n appronturo coloro agli occhi, e agli orecchi, i quale che non ballano a tempo, o non cantano a battuta. What pain and uncertain fainlations do those give us, who neither dance nor sing in time?

Amendae parliamo in rime, cansoni, e altre spedie di dire con mufica di pide, e di tempo sillabati. Both pronounced in rhyme, longs, and other species of poetry, in measured feet, and poetical numbers. This passage is cited from a MS. of 1400.

It is not easy to imagine how music, in many parts, could be composed in score, with bars or vertical lines drawn through them all, whence the term score was derived; nor what kind of bars could contain the quantity of a maxima, equal to eight semibreves, unless we suppose that semibreves were sung or played as quick as quavers are now. See Time, Accent, Ars & Measure.

The most ancient kind of time-table that has occurred in the course of our researches, consisted of only four several kinds of musical characters.

The Maxima

equal to

2 Longs

4 Breves

8 Semibreves

Among Italian music, as we frequently find the words battuta, which import actio in musica, after resecutive, or "a d battut". Accordingly, a in the Italian musical language, when it precedes a half note, has the power of an.

BATTUPTUDAN, Thes. lapidet. Pal. in Natural Hist. of true, one of the synonyms of Madrutora Labyrinthica. Gracal.

BATTER, Batus, Author, in Batum, in Ancient Geography, a town of Dalmatia, now Budia, which is.

BATTUS, in Geography, a kingdom of Africa, in the empire of Monomorpo, extending from the mountains of
the Moon to the river Magnico, whose prince is a vassal of the emperor. It is famous for its gold mines.

BATUDA, a method of mining mentioned in some Middle Age Writers, wherein the gold is driven by beating the water with poles, till flocking into one place, they are the fonder caught.

BATUCEAS, Los, in Geography, a people of Spain, in the kingdom of Leon, and diocese of Coria, inhaling a valley called the valley of the Batuecas, encompassed by mountains that are almost inaccessible, between Salamanca to the north, Coria to the south, the river Tormes to the east, and the rock of France to the west. These people are supposed to be the remains of the ancient Goths, who took refuge in this valley among high mountains in their escape from the Moors. Others say, that their ancestors were ancient Spaniards or Iberians, who retired bither at the time of the invasion of the Goths. They are distinguished by their barbarism and rudeness to such a degree, that the Spaniards proverbially denominate an uncivilized person, one who comes from the valley of Batuecas.

BATURIN, a town of the Ukraine, on the river Desna, belonging to the Russians, and situate in the district of Nefchin, which forms a part of Lower Russia. It was destroyed by the Russians in 1728; but the castle has been twice rebuilt, and the town in some degree repaired.

BATUS, in Entomology, a species of Cerambix, found in India and South America. The thorax is wrinkled and pitted; wing-cases hidentated; antennae long, with hooked prickles. *Linn.* This is Capricornus Niger. *Muf. Petrop.*

BATUZABER, in Geography, the capital of the kingdom of Yohor, in the southern extremity of the peninsula of Malacca, situated about 6 leagues from the sea, on the river Yohor or Jor, in a marshy situation, so that its small wooden houses are raised upon poles about 8 feet from the ground.

BATZ, or BATZEN, in Commerce, a copper coin mixed with some silver, and current at different rates, according to the quality of alloy, in many parts of Germany and Switzerland.

B. A. V. See Character.

BAVANY, or BOWANY, in Geography, a river of Hindoo-fooian, which runs into the Caevry, 7 miles north of Erroad in Coimboore. N. lat. 11° 25' E. long. 77° 50'.

BAVARIA, Circle or, called Bayern by the Germans, one of the circles of Germany, derives its name from the duchy of Bavaria, which is the most considerable part of it, and is bounded on the east by Austria and Bohemia, on the south by Carinthia and Tyrol, on the west by Swabia and Francois, and on the north by the Upper Palatinate, which, if considered as belonging to it, verges towards Upper Saxony. The dominions of the elector of Bavaria and the Palatinate, for those electorates are united, are computed to contain 16,176 square miles, and 1,334,000 inhabitants. Heeck estimates Bavaria at 1,139,600, and the Palatinate at 305,400. See PALATINATE. Bulching distributes the 20 fates of the circle of Bavaria into ecclesiastic and laic. To the former he refers the archbishopric of Salzburg, the bishoprics of Freisingen, Ratibon and Palffuen, together with the priory of Berchtholfadren, and the abbeys of St. Emeran, Lower and Upper Minster, all which three lie in the city of Ratibon. The latter are composed of the elector of Bavaria, the duchies of Neuburg and Sulzbach, the landgraviate of Leuchtenberg, the princely county of Sternstein, together with the counties of Haag and Ottenburg, and also the lordships of Ehrenfels, Sulzbach, and Pyrbaum, Hohenwaldeck, Brieteneck, and the imperial city of Ratibon. Of this circle, the elector of Bavaria, and the archbishop of Salzburg, are joint summoning princes. The diets, though usually held at Ratibon, are sometimes summoned to Waffenburg, Landshut, and Muldorff. When the military force of the empire, in time of peace, was settled in 1691, at 40,000 men, the number required to be furnished by this circle was 800 cavalry, and 1494 infantry; and towards the 300,000 florins granted in 1707, it paid 18,252 florins, 9 kruutzers. The elector of Bavaria is the military commander of the forces of the circle.

Bavaria is part of the Rhetian Vindelician and Noricum of the ancients, and is supposed to have derived its name from the Boii, a warlike people that migrated from Gallia Celtica, crossed the Rhine, and first settled in Bohemia. About the time of the empire Augusti, they were expelled the country by the Marcomanni, and removed into Noricum; and their settlement was called "Bojoi" or "Bayerland:" in Latin, "Bohuria," or "Bacaria," whence, in process of time, was formed Bavaria. In the 5th century, when the empire of the Franks was divided among the four sons of Clovis, Bavaria became subject to the dominion of the Austraian kings, and was governed by dukes. In the 6th century, princes of the Frankish family allumed the title of kings of Bavaria, while Liutpold in 889, was the first duke; and his progeny extend to the present day, though interrupted in 946, when, Berthold dying without children, the emperor Otto gave Bavaria to his brother Henry of Saxony. In 1071, Wilf, son of Azo of Ebe, became duke of Bavaria, which, in 1135, passed to the house of Austria; but in 1134, it reverted to the house of Wilh, in the person of Henry the Lion. In 1180, it finally returned to the first family, by the succession of Otho of Wittlebach, a descendant of Arulaup, second duke of Bavaria, A.D. 997. After the family had been unjuilly deprived for more than two centuries, the Palatinate and Bavaria have recently been inhabited by a branch of the family of Deux Ponts, the son of the elector being now nominal duke of Deux Ponts.

BAVARY, Duchy or Electorate of, comprehends the greater part of the circle, and is divided into Upper and Lower Bavaria, and the Upper Palatinate. The length from north to south is somewhat interrupted, but may be about 150 British miles, and the breadth about 120. The duchy is bounded on the north by Bohemia and the Upper Palatinate; on the east by Austria, and the bishoprics of Salzburg and Palffuen; on the west by the duchy of Neuberg, the marquisate of Burgau, and the bishopric of Augsburg; and on the south by the county of Tyrol, and the bishopric of Brixen. Upper Bavaria is, for the most part, mountainous, cold, and barren, producing little corn and lefis wine; but it is covered with forests, intermixed with large and small lakes, and abounds in cow, wild fowl, game, haths, medicinal springs, and salt works. It is also enriched with mines of silver and copper, lead and iron. It has also many quarries of marble. Lower Bavaria, being much more level, is more fertile, and produces plenty of grain, palmage, and fruit. The mountains of Upper Bavaria may be considered as branches of the Alps. The chief rivers of this duchy are the Donabe, the Iter, the Inn, the Lech, the Na, the Atmuh, and the Regen. Its large inland lakes are 16, and its smaller ones 100. Render, in his "Tour through Germany." (Vol. ii. p. 290.) reckons 33 cities, besides Munich the capital, 80 market towns, 8,000 villages and hamlets, 39,449 taxable farms, 12,000 solitary houses, 6,000 uninhabited farm-houses, 180,000 hearths, 3,050 churches, 5,48 chapels, 906 parishes, 12 collegiate foundations, and 142 convents. Upper Bavaria is divided into two governments or regencies; that of Munich, and that of Burghtaun. The principal towns of the former are Munich, Pfaffenhauten, Abenberg, Ingolstadt, Donawert, Friedberg, Landshut, Weilheim, Töz, Waffenburg, Traunstein, and Reichenhall. Those of the latter, are Burghaun, Goting, Tirolburg, Brunn.
Bavaria.

Lower Bavaria is also divided into two governments; that of Landshut, comprehending, besides other towns, Landshut, Erding, Dingelberg, Teilsbach, Hals, Rottenburg, Molburg, and Olbernhofen; and that of Straubing, the chief places of which are Straubing, Pogen, Cham, Kelheim, Stadt-am-Hof, and Deckenhofen. The rates of the duty of coal in both places, which a common council sits at Munich whenever it may be necessary, but before the accession of the house of Deux Ponts, the administration had become the most baleful of any in Germany; and on this account the political importance of Bavaria lies, in some measure, declined; and in the dangerous conflict that has subsisted, and may still subsist, between France and Austria, it may be difficult for this power to preserve a shade of independence.

The celebrated religious division of Bavaria is the Roman Catholic; and no other is even tolerated; and thus the spirit of industry is very materially checked and restrained. The clergy, both secular and regular, are very rich; and the peasants are wretched in the extreme, their chief subsistence arising from the herd of swine that are fed on acorns and crabs in the woods and forests. The regular military force is estimated at 12,000. The principal manufactures of the country are those of coarse woollen cloth, flax and woollen stuffs, velvet, tapestry, flockings, clocks, and watches. The principal exports are wheat, cattle, wool, salt, and iron. Besides the mines of silver and copper near Donau-Ries and Kottwall, in the basin of Weichach, and of lead at Reichenbach, the chief mineral riches of Bavaria consist in the salt springs at Traunstein, which descend mountains of saline earth, like those at Haltern, in the archbishopric of Salzburg, and occupy many people in productive industry. There are other springs at Reichenbach. These latter springs are 20 in number; but salt is only made from 4 of them; for which purpose part of the water proceeding from them is conveyed by pipes to the cauldrons at Traunstein, which are about 3 leagues distant. The salt annually made from these springs amounts to 250,000 quintals.

The title of the elector is “By the grace of God, duke of Upper and Lower Bavaria, as also of the Upper Palatinate; Palatine of the Rhine, arch-landgrave of the holy Roman empire, and elector and landgrave of Leuchtenberg.” He has 5 hereditary offices, viz. a master of the household, a baron, marchal, cup-bearer, and houseman. The Bavarian order of St. George was revived in 1798, by the elector Albert. The knights of the order are styled “defenders of the immaculate conception of the blessed Virgin Mary,” and are required to produce unblemished proofs of the nobility of their ancestry for 8 generations in both lines. The elector is a grand master; and his ensign is a crown, enamelled blue, with a St. George in the middle; on the reverse of which is the name of the ruler of the order in a cypher surmounted with a crown, and below it the angle the letters I. V. P. E. with lightly “julius exult palma fiorb,” i.e., the righteous shall flourish like a palm-tree. The crown is worn pendant to a broad blue-blue ribbon, with a black and white border. The elector has the fifth seat in the electoral college, and general votes at the diets, both of the empire and the circle, in the colleges of the princes and counts. His ordinary revenue, including the tolls on all the vessels which pass up and down the Danube, and other navigable rivers, with all that arises from the monopoly of cornc, flax, hemp, tobacco, and wines, together with his own domain, is appraised, by some, to amount to 700,000l. per annum. Buchensch and Baron Reissbach estimate it at 800,000l.

The Bavarians are little distinguished in literature; but there are a vigorous race, adapted to the fatigues of war. They have, however, an university at Ingolstadt, and an Academy of Sciences at Munich. Baron Reissbach’s “History” gives a very complete account of their costume, and general disposition and character. The character of a Bavarian, he says, is a very round head, a little hump, a large belly, and a pale complexion; so that many of them appear like caricatures of men. They have large fat bellies, fine clubbed feet, narrow shoulders, a thick round head, and short necks; and they are hearty and awkward in their carriage. But the women are, in general, extremely beautiful, well shaped, of clear transparent complexion and much more lively and graceful in their gestures than the men. The chief ornament of the men is a long broad waistcoat, strangely embroidered, from which their breeches hang low and loose. The women disguise themselves with flaps in the shape of a funnel, covering the breast and shoulders, and hiding the whole neck. He says, that no one can describe the ridiculous mixture of debauchery and devotion, which is exhibited every day; and he adds, that the propensity to feasting, indolence, and beggary, which prevails in Bavaria, is compensated and sanctioned by the example of the pupils. Indolence, he says, is the prevailing character of the Bavarians; and Bavaria well deserves the character given of it by an officer of Gaffney, of being the greatest brothel in the world. With their indolence, temperance, and devotion, they unite, according to his account, a certain ferocity of temper, which often occasions quarrels, mutual abuse, and feuds of blood. The Bavarian peasant, says this writer, is gruff, fat, dirty, lazy, drunken, and undisciplined; but he is brave, economical, patriotic, and such a slave to his word, that when it has once been given, it is never violated. Considerable benefit, however, has been derived from the landable plans for destroying mendacity and encouraging industry, proposed and carried into effect at Munich by Count Rumford. See Munich.

By the plan of indemnities, agreed upon between the First Consul of France and the emperor of Russia, in pursuance of the 7th article of the treaty of Laneuve, it was agreed to propose that the indemnities to the archduke, grand duke, should be for Tuscany, and its dependencies, the archbishopric of Salzburg, the provostship of Brandsort, the bishopric of Trent, that of Brixen, and part of that of Passau, situate beyond the Rhine and the Inn, on the side of Austria, except the seaboard of Passau, with a radius of 500 toises, and the albes, chapters, and convents, situate in the abovementioned diocese. These principalities were to be taken out of the circle of Bavaria, and incorporated in the circle of Austria; and their ecclesiastical jurisdictions, both metropolitan and diocesan, were to be also separated by the limits of the two circles; Mulhildorf to be united to Bavaria, and its equivalence in revenue taken from those of Freisingen. To the elector Palatine of Bavaria those were to be added, for the dukedom of Deux-Ponts, the duchy of Juliers, the palatinate of the Rhine, the marquisate of Reig-op-Zoom, the regency of Raunstein, and others situate in Belgium and Alsace; the bishopric of Passau, with the reservation of the part of the archduke; of Waltzhausen with the reservations hereafter mentioned; of Bamberg, of Augliedt, of Freisingen, and of Augsburg; the provostship of Kempton; the imperial
BAU

perial cities of Rothenbourgh, Weissenbourgh, Windheim, Schweinsfort, Groshheim, Schnedelf, Allsteuben, Kempton, Kauflcuren, Memmings, Dinkelshul, Nordingen, Uhn, Boffingen, Buchorn, Wangen, Leutkirch, Ravenbourgh, and Allschhausen: the abbeys of St. Ulric, Iftece, Wengu, Soedlingen, Elchingen, Urrburg, Rothenbourgh, Weitenhausen, Ottobercn, Kaisemhof. By the treaty of Preburg, 26 Dec. 1805, the electorate (now the new kingdom) of Bavaria acquired the margravate of Burgau and various other territories.

BAVARIA, Palatinate of. See Upper Palatinate.

BAVAY, Paul Ignatius De, in Biography, born at Brusells in 1704, applied himself early, and exclusively, to the study of chemistry, in which his father had waffed a considerable patrimony. At length, in 1755, he went to Lovain, where, at the end of two years, he was admitted Doctor in Medicine. He now returned to Brusells, and acquired so much reputation by his success in his practice, that, in 1746, when the French were in possession of the city, he was made physician to the military hospital there. In 1749, the French having evacuated Brusells, he was appointed Demontrator in Anatomy, but being opposed by the principal physicians, and his practice condemned, probably on account of his professing to cure some diseases by a nostrum of his invention, he went to Dendermond, where he continued for some time. Returning again to Brusells, he died there, Feb. 20, 1768. His works are, "Petit Recueil d'Observations en medecine fur les vertus de la confection tonique, refutive et diurétique," Bruxelles, 1753, 12mo. "Méthode courte, saine, peu coûteuse, utile aux médecins, et abfolument nécessaire au public indigent pour le guérison des pleureurs malditos." Bruxelles, 1759, 12mo. The principal ingredients in his medicine, are said to be quilles and Florentin oreis. Elyot. Dict. Hill.

BAVAY, in Geography, a town of France, in the department of the North, and chief place of a canton in the district of Avesnes. The place contains 14.55 and the canton 6260 inhabitants: the territory includes 1455 kilometres and 20 communes. N. lat. 59° 25'. E. long. 2° 45'.

BAUBEE, a term used in Scotland for a halfpenny. Johnson.

BAUBIGNY, in Geography, a town of France, 14 league from Paris.

BAUBIS, in Zoology, a French name of a race of running dogs, called chins Normans, or dogs of Normandy. BAUBULA, in Geography, a river of Spain, in the province of Arago, which runs into the Xalon, about a league below Catalantid. BAUCDIAS, in Ancient Geography, an island of Greece in the Saronic gulf. Pliny.

BAUCONICA, a town of the Vangiones, in Gallia Belgica, 9 miles from Mogontiacum, and 14 from Botribotinum: supposed to be Oppenheim, which it is.

BAUD, in Geography, a town of France, in the department of Morbihan, and chief place of a canton in the district of Pontivy, 18 leagues south of Pontivy. The place contains 6115 and the canton 13,607 inhabitants; the territory includes 2432 kilometres and 47 communes.

BAUDANVILLE, a town of France, in the department of the Meurte, and chief place of a canton in the district of Blamont, 53 leagues south of Blamont.

BAUDEKIN. See Baudachin.

BAUDELOT, Charles-Cesar, in Biography, was born at Paris in 1648, and studied first at Beauvais, and then at Paris. He was, against his inclination, bred to the law, and pleaded as counsellor of the parliament of Paris for some time with success. But he afterwards devoted himself to the study of antiquities. Having had an opportunity, in a journey to Dijon, to visit the libraries and cabinets of the place, he began to make a collection of books and medals; and he was thus led to write a book "On the utility of Travelling," 2 vols. 12mo, 1686; the subject of which was inscriptions, medals, statues, bas reliefs, and other relics of antiquity. It passed through several editions in French, and was translated into English. This work introduced him into an acquaintance with the most celebrated antiquaries of Europe, and was the means of his admission into the academy of Ricovresti at Padua. In 1705, he was made a member of the academy of Belles Lettres; and he had the charge of the valuable cabinet of the duchess of Orleans. He was the author of several dissertations on subjects of Medallie history and antiquities: and he is said to have composed the first travels of Paul Lucas. He died in 1722, with the character of a mild, modest, and benevolent man. Novv. Dict. Hill.

BAUERON, Brice, born at Charolles, about the middle of the sixteenth century, distinguished himself by his knowledge in pharmacy, to which he applied with such success, that a Pharmacopoeia, published by him in 1588, became the standard book for many years in France. It was founded on the Pharm. Lyonnaise, and of Du Boys, with the observations of Catalanius on distilled waters. Philemon Holland translated it into Latin, and published it in London, in folio, 1639, and at the Hague in 1642. It has since been many times reprinted, both in French and Latin. He also published "Praxis de Fabrius, et de symptomatibus in morbis internis," 4to, 1622, Paris. In the preface to this book he says, he is now 80 years of age. He died three years after, 1625. His son, Gratian Baueron, who was brought up to the same profession as his father, died in 1615, aged 35 years. Halle. Bib. Med. Pract. Elyot. Dict. Hill.

BAU DIER, Michael, historiographer of France under Louis XIII. was born of a noble family in Languedoc. He was the author of many works containing valuable information, collected with greater industry than tallow genius. The principal are, A General History of the Seraglio and Court of the grand Signor," 8vo. Paris, 1653; "A General History of the religion of the Turks, with the life of their prophet Mahomet, and the four first Caliphs," etc. 8vo. 1636; "A History of the Administration of Card. d'Ambe, minister of State under Louis XII.," Paris, 1643, 4to; "History of Marshal de Thoiras," Paris, 1643, fol., and 1666. 2 vols. 12mo. He left in MS. a history of Margaret of Anjou, wife of Henry VI. of England, which is said to have been translated and published as an original work in England. Baudier was attached to the polite arts, and made a collection of medals and curiosities, such as his fortune would allow. The time of his death is not known. Novv. Dict. hill.

BAUDIUS, Dominie, a learned philologius, was born in 1561, at Lille, in Flanders, and retired with his parents, who were of the reformed religion, from the persecution of the duke of Alva, to Aix-la-Chapelle. After having studied at Leyden, Geneva, Ghent, and other places, he settled at Leyden, where he applied with affivity to the study of jurisprudence, and was made doctor of laws in 1587. He visited England, and then travelled into France, where he obtained several distinguished patronages, and resided for 10 years. In 1602, he was nominated professor of eloquence at Leyden, and he also delivered lectures in history and jurisprudence. In 1611, the States made him joint historiographer with Meurinius, and as such he wrote in published
hished Latin, a "History of the Truth." He also acquired great reputation, both as a poet and prose-writer in that language. Towards the close of his life, he incurred the displeasure of prince Maurice, by his harangues in favour of peace; and he offended many persons by his political and religious sentiments, as well as by his moral conduct, which was not such as to secure respect. His poems include an irritable temper, and abound with critical abuse and defamation; and particularly against the enemies of Scaliger. Moreover, he was boastful, vain, importunate, and selfish; and his licentious outbursts, both with regard to wine and women, involved him in much disgrace. He died at Leyden in 1542. His poems, which manifest gravity and solemnity of diction and elevation of sentiments, were first collected and printed in 1587; and a more complete collection was printed at Leyden in 1627, and reprinted at Amsterdam and other places. The "Letters" of Baudius, published after his death, are more esteemed for their style, than his poems. He also published "Haranques," and some other pieces, all in Latin. Gen. Dict.

BAUDOBRIUM, or BAUDOBRIA, in Ancient Geography, a place of Gallia Belgica, upon the banks of the Rhine, south of Confluentes. The machines of war, called Balli, were under the conduct of a prefect residing in this place; and the head-quarters of the general were at Auguntiacum, or Mayence. Baudobrica was also another place of Belgica Prima, north of Anglia Treverorum, now Boppard.

BAUDOUIN, Francis, in Latin Balduinus, in Biography, an eminent civilian and man of letters, was born at Arras in 1522, studied at Louvain, and in his youth resided at the court of Charles V. At Geneva he became intimate with Calvin, and embraced the reformed religion. In France he conformed to the religion of the country, and taught the law at Bourges from 1528 to 1545. In Germany he delivered lectures at Strasburg, Heidelberg, and other places, avowing himself a Protestant; but by joining Cassander in a project for bringing about a coalition of religions, he excited the lasting dislike of Calvin and Beza, and others of the reformed party. He enjoyed the favour of cardinal Lorraine, the inveterate enemy of the Calvinists, and is supposed to have induced Augustus, the weak king of Navarre, to abandon them. By that prince he was patronized, and appointed his legat at the council of Trent. Upon the death of Antonio in 1562, he was invited to join his father, and finally settled at Paris, where he resided, acquired by several learned works which he had published, rendered his character popular among persons of the first distinction. The duke of Anjou after rewards Henry III. wished to engage his pen in the embellishment of the Church of St. Bartholomew; but to this prince he delivered his sentiments as an honest man, and was so much esteemed by him that he appointed him one of his counsellors. While he was preparing to follow Henry to Poland, he was seized and imprisoned, which terminated his life at the college of Arnaud in Paris in 1573. He was distinguished by critical knowledge, admirable memory, and persuasive eloquence. Notwithstanding the just reproach which he incurred by his veracity in religion, so that he was appropriately denominated a "Hermaphrodite," it appears to have been a man of moderate and tolerating principles; and whilst he condemned the severities exercised against the protestants in the Low Countries, he also confided the unfavourable zeal of Calvin in the perfecution of heretics. His Latin style was pure and elegant, and he left several works on the civil law, and also historical, theological and controversial works, which have been much esteemed. Gen. Dict. Nouv. Dict. Hist.

BAUDRAND, Michael Antony, a celebrated geographer, was born at Paris in 1633. When he had

finished his studies, he accompanied cardinal Antonio Barberini as his secretary to Rome; and upon his return to France, he was employed in revising Ferrarius's Geographical Dictionary, which he enlarged by half, and published at Paris in 1671, fol. By his travels in Germany, and his visit to England, he was furnished with a variety of observations that were useful to him in the compilation of his geography. Upon his return to France in 1677, he composed his Geographical Dictionary in Latin, entitled "Geographia ordines literarum dictionum," Paris 1682, 2 vols. fol. After a journey to Rome in 1691, he applied himself at Paris to the completion of his French Geographical Dictionary, which he was prevented from publishing by his death the year 1702. This work was published at Paris in 1705, in folio, but it is said to be a corruption rather than a translation of the Latin Dictionary, printed in 1682. Gen. Dict.

BAUER, in Ichthyology, the name of the angler or Eel.
of France, Germany, Italy and Switzerland. In this jour-
ney he collected a prodigious number of plants, which formed
the basis of his principal work, the "Historia Plantarum,"
which he even then had in contemplation, as appears by his
correspondence with Gesner, carried on long after his return,
but which was not published until several years after his
death. Having accomplished the principal object of his
travels, he first settled at Basel, where in 1566 he was
elected professor in rhetoric. Some time after he removed
to Yverdun, and at length, on the invitation of the duke of
Wurttemberg, to whom he was made principal physician, he
went to Montbéliard, where he continued to reside the re-
maining forty years of his life. Though botany engaged
the greater part of his time and attention, yet he was not un-
mindful of other parts of natural history, as appears by his
account of the medicinal properties of the principal mineral
wars of Europe, particularly of the waters at Boll, in the
principality of Wurttemberg, written at the command of the
duke, to which he has added descriptions of the complaints
in which mineral waters are miscible; and his "Historia plantarum aliquot nupramorum, circa annum 1565. apud Monopolithicam, medullarum damno, pub-
lie graphicum fuus," published at Montbéliard, 1591, 8vo.
He died in 1613, aged 72 years. His correspondence with
Gesner, principally on botanical subjects, with his book "De
plantis a divina fucrificiis non lenebutinis," was published
by his brother Gaspard, at Basel, 8vo, 1591, parum libel-
num, Haller says, et quod specimen fectorum operis. In 1593,
he published at Montbéliard also, in 8vo, "De plantis ab-
fintiis non lenebutinis." The prodromus of his great work
was published at Yverdun, in one volume 4to, in 1619, under
the names of J. Bauhin and Henry Cherler, his brother-in-
law, who had contributed to its perfection. In this speci-
imen, Haller says, you see the rudiments of a natural clas-
sification of plants. The "Historia plantarum nova, et absolu-
titulam, cum anetorum confenfio et diffiner, circa can," upon
which the author had bestowed above forty years' labour,
was at length published at Yverdun in 1650 and 1651, in
three volumes in folio, under the care of Dr. Chudér. Not-
withstanding the numerous errors in this book, many of
which Haller says should be imputed to the editor, who
was but indifferently qualified for the task he had under-
taken, it is a noble and valuable work, and defervingly
places the author in the first rank among the improvers of botany.

BAUHIN, JOHN GASPARDS, born at Basel in 1560, twenty years
later than his brother John, having the advantage of his
brother's experience to guide him in his inquiries, made
proportionately early advances in knowledge. After passing
through the necessary preliminary studies, under Fabricius
ab Aquapendente. Sev. Pinæus, and other celebrated anat-
omists at Padua, Montpellier, and Paris, and having col-
llected in his travels a large number of plants, many of them
unnoticed by his brother, he returned to Basel in 1580, and
was admitted doctor in medicine. In 1582, he was made
Greek professor, and in 1558, professor of anatomy and bot-
any, of which he is called in his epitaph the Phænix. He
was afterwards made professor of the practice of medicine,
archiætor, or principal physician to the city of Basel, dean
of the faculty of medicine, and rector of the university, which
distinguished honours he continued to hold to the time of his
death, which happened in 1624.

Indications in his attention to the duties of his several
offices, he discharges them with such regularity as to secure
him the affection of his pupils, who materially assisted him
in collecting plants, necessary in completing his botanical
works, to which also his correspondents in different parts of
Europe largely contributed.

Notwithstanding the number and variety of his offices,
many of his time must have been employed in composing and
preparing for the press his numerous publications on anat-
omy and botany; and though great additions and improve-
ments have been made in our knowledge in these sciences
since his time, many of our author's works are still consulted,
and held in estimation. A few of the titles to his principal
works follow: for the refri, see the Bib. Anat. and Bot. of
Haller. "Flora, Rousseti i. de partu cæfaro, e Gallico in
Latinum tradid." 4to. 1585, Basel. Two years after he re-
published this work with an appendix, containing additional
causes of women who are said to have undergone the operation
and recovered; to which is also added a description of the
valve of the corset, of which he claimed the discovery. "The-
atum Anatomicum, infinitis locis auctum, Francol." 1621,
4to, including several smaller works on anatomy, published
by him before at various times. "Viva imaginea corporis huami aevi formis expresse, ex theatro anatomico
Cap. Bauhini demusculata." 1620. The figures are
principally from Vesalius and Eugabius; some are proper
to the author. In this work also are contained other disco-
very in anatomy made by the author. "De hermaphro-
torum monoturumque partium natura," Oppeheim, 1618,
8vo. In 1598, he published "Matthioli opera, quæ extant
omnia," fol. Franc. in which there are many plants Haller,
says, not before described. "Finus theatris botanici, seu
index in Theophrasti Dioscoridis, Plini, et botaniculturorum
qui a feculo scripferant operis," &c. Basle. 1623, 4to, a
work extremely useful to perfons consulting the older bot-
aical writers. "Catalogus plantarum cire Bafileam nasce-
tium," Bafil 1622, 8vo; the largest catalogue extant,
Haller says, of plants growing in a single district.

BAUHIN, JOHN GASPARDS, born of the former, born March 12th 1560, after being well instructed in the Latin
and Greek languages, and initiated in the knowledge of bo-
tany, anatomy, and other branches of medicine under his
father, went to Paris in 1624, where he continued two years,
attending the schools of the most celebrated masters there.
He afterwards visited England, Leyden, Padua, and various
other places; the fame of his ancestors procuring him an easy
introduction, wherever he went, to the most distinguished
perfons. Returning to Bafil 1628, he was made doctor
in medicine, and two years after professor in anatomy and bot-
any, which office he held for thirty years. In 1669, he
was made professor in the practice of medicine, and
was several times appointed dean of the faculty, and rector
of the university. He died July 14, 1685.

Notwithstanding the numerous honors conferred upon
him, he does not appear to have contributed much to the
improvement of the science he professed, having only left
three dissertations of little note or value, "De pelle, de
morborum differentiis et causis, et de Epilepsia."
legume. El. Char. C. f. five-leaved, deciduous. Pet. expanding, elongating, with claws, the upper one more distant, all inserted into the calyx. Legume. Species, 1. B. fimbriata, climbing mountain ebony. Tettn. Ing. Rumph. Amb. 5, t. 1. Clematis indica. Ray Suppl. 328. n. 13 & 14. Naga-mu-villa, Rheed. Mal. S. 57. t. 32, 31. "Stem circumflexus." Raising with many slender flutes, which put out tendrils and form themselves to the nearest rising tree; leaves alternate, heart-shaped, or long foot flutes, six inches long, three and a half broad in the middle, deeply cut into two-pointed lobes, each having a prominent longitudinal vein: flowers at first white, turning to a yellowish or violet: fruit slender and flat, containing six to eight flat boxy seeds, black with a silvery border. A native of both Indias, not producing flowers in England. The seeds were sent to Mr. Miller from Campeachy, probably before the year 1752.—2. B. acuminata, prickly, rounded mountain E. * Item prickly.* An erect vigorous shrub, about a man's height; trunk and branches prickly, leaves roundish, with two to roundish blunt lobes; eleven to one-third of their depth, smooth with nine nerves; petiole thicker and callous at both ends, from the base of which proceeds on each side a sharp short prickle, distilling when young, nectariferous; flowers large, white, and having an unpleasant scent; rising, in Jamaica, to the height of sixteen or eighteen feet, and plentiful there and in the other fuchsia islands; the flowers are succeeded by pods, about three inches long, containing two or three fueling seeds; the pods are glutinous, and their, as well as the brided leaves, have a strong balsamic scent. Called in America the Indian fave-tree, from its strong odour, which somewhat resembles the common fave. It is frequent about Carthagena in woods; cultivated by Mr. Miller in 1752.— 3. B. divaricata, dwarf mountain E. * Leaves smooth, leaves divaricata, acute, two-nerved; petals lanceolate.* A low shrub, seldom rising more than five or six feet high, dividing into several branches; corolla, white, and flowers in a simple upright raceme; having an agreeable scent, appearing during the greater part of summer, and exhibiting one of the chief beauties of the hot-house: the pods are taper, about four inches long, and contain four or five dark-coloured seeds. A native of the north side of Jamaica, where it grows plentifully; cultivated by R. J. Lord Petre, before 1742; flowering from June to September.—4. B. angustata, "leaves ovate, leaves parallel," differing from the others in its more oblong leaves, entire at the base, divided in the middle into two straight parallel lobes, and having nine nerves. The calyx is long, divided, and of a grey colour; the petals are subulate, flowers elegantly shorter; leaves very long, penultimate, its to the height of twenty feet, with a number of leaves, divided into two final branches, terminated by loose bunches of white flowers, which are succeeded by very long, narrow, compressed fruits, in which hiding the true seeds. A native of America; the seeds were received by Mr. Miller from Campeachy.—5. B. variegata, variegated mountain E. Arbor S. Thiere, Zool. H. d. 26. n. 15. Chavona-Mandar: 1 Rhed. Mal. 1. 57. t. 32. "Calyces one-leaved, lurking; petals oblong, oval; leaves of the lower ovate." In the with a three leaves, upwards of twenty feet high, divide into many short branches, flowers large, in large panicles, at the extremities of the branches, of a purplish red, marked with white, and the bottom yellow; pods about six inches long, and an inch thick, containing three or four compound seeds. Growing naturally both Indias, and introduced here by Mr. Bentick in 1762.—6. B. protostel'a, purple mountain E. Chavonna-Mandar: 2. Rhed. Mal. 1. 50. t. 33. "Leaves subsulcate, two-parted, and hirt, tenui-to mentato beneath." A tall tree, differing from the foregoing in having larger leaves, more deeply divided and more contracted on the sides; the calyx is yellowish green, and red; the corolla of a very red purple, and one petal out of the five forked with white on the claw within and without; all lanceolate and distinct; leaves larger than those of any other part, being one and half or two spans long, and an inch broad. A native of the East Indies, where it flowers thougthout the year. Introduced here in 1752.—7. B. fimbriata, growing mountain E. Mandar Mandapam, Phil. Arch. 23. t. 44. f. 6. Callistemon, Rheed. Mal. 1. 63. t. 33. "Leaves cordate, leaves semi-orbiculate, tenuifomes." This grows to the height of two fathoms, with a trunk nearly six inches in diameter, and divides 170 many branches; leaves smaller than those of the foregoing, round, cloven half way, seven-nerved and blunt, with round lobes; having a strong scent if rubbed during the night, when the leaves are clapped together; the calyx of the flowers green and bell-shaped, the corolla yellowish white; one of the petals having a dusty red purple spot at the claw; lamellae yellowish white; flowers without fince. A native of the East Indies. Cultivated, by Ray, by Compton bishop of London, in 1687.—8. B. acuminata, sharp-leaved mountain E. Velutina-Mandar, Rheed. Mal. 611. t. 34. "Leaves ovate, leaves acuminate semi-ovate." This rises to a man's height, with a trunk as thick as his arm; leaves more deeply cut, longer, contracted into a cup or point towards the end, nine-nerved, leaves divaricata, flowers bell-shaped, pure white, without scent; petals rounded and blunt; lamellae white; leaves smaller than in the others, being four or five inches long, an inch broad, smooth, with a round broad back. A native of the East Indies.—9. B. marginata, "item prickly, leaves cordate with round lobes, tenuifomes beneath." Folid rising more than ten feet high, dividing into many branches, armed with short crooked spines; leaves alternate, heart-shaped, with two roundish lobes; flowers two or three together at the extremity of the branches, large, of a dirty white colour, and succeeded by flat pods, each containing two or three seeds—10. B. revoluta, "item prickly, leaves subcoricate, two-parted, rounded, flowers scated," rising twenty feet high, with a strong upright stem, sending out branches towards the top, armed with spines in pairs, strong and crooked; leaves like the former; flowers large and white, succeeded by long flat pods, narrow, and each including five or six seeds. This and the preceding are natives of Cathagona in New Spain.—11. B. maria, long-cared mountain E. "Leaves subtranslucent from the base, leaves lanceolate, porrected, three-nerved; petals lanceolate." Cultivated by Mr. Miller, in 1756, and flowering in September.—12. B. perrotata, smooth broad leaved mountain E. "Leaves cordate, leaves porrected, acute, three-nerved, petal lanceolate." A tree rising about fifteen feet high, with several straight trunks, thick as a man's leg, covered with a whitish bark, dividing into many branches and twigs; leaves three inches long and two broad, yellowish-green, smooth, with seven or more ribs, and four transverse; the peduncle an inch long; the flowers at the ends of the twigs, on peduncles, if an inch long; petals long, red-white variegate; corolla red; stamina white, and yellow; leaves five or six in the same brown. Growing on the hill in Jamaica. The wood is very hard, I painted with black, whence the name of clavata. Cultivated by Mr. Miller, in 1739, and flowering in July.—13. B. rufii-fata, white-leaved mountain E. "Leaves cordate, pilosellate beneath, leaves ovate, obtusif, calyces not expanded upward and elongated." A native of the East Indies, introduced by Dr. P. Ruffill in 1777; flowering in May and June. There are many other species both from the East and West Indies, not yet sufficiently examined. The whole genus needs further investigation.

E. Propagation.
BAU

Propagation.—All these plants, being natives of hot countries, will not thrive in England out of the bark-floe. They are propagated by seeds procured from their native countries, which should be brought over in their pods. These must be laid in pots filled with light fresh earth, and plunged into a moderate hot bed of Tanner's bark; and if the seeds be good, they will come up in five weeks, and in a month after they should be carefully shaken out of the seed pot, without injuring their roots, and each of them planted in a separate small pot filled with light loamy earth, and plunged again into the hot-bed, finding them till they have taken fresh root, and then admitting fresh air to them every day in warm weather. In autumn they must be placed in the bark-floe, and treated like other tender exotics, giving them but little water in winter. As these plants frequently flower in winter, they deserve a place in the floe. Martyr's Miller's Dict.

BAUVINs, in War, faggots made of birch, heath, or other 'ort of brush-wood, that is both quickly fired and tough, 2 or 3 feet long, with the brush-ends all laid one way, and the other ends tied with two bands. They are dipped and sprinkled with sulphur, like reeds, excepting only that the brush-ends only are dipped, and should be closed together before they are sprinkled, to keep them more close, in order to give a stronger fire, and to keep the branches from breaking off in shifting and handling them. See Fascines.

BAULA, in Ancient Geography, a district of Italy in Campania, between Baiae and the Lucrine lake, formed according to Tacitus, by the sea; and the fact of many country houses.

BAULAS, in Geography, a town of Syria, 50 miles east of Damascus.

BAULEM's Kill, a western water of Hudson's river, 83 miles below Albany.

BAULOT, or BEAULIUS, JAMES, in Biography, of mean and obscure parentage, was born in the province of Burgundy, in 1651. Becoming acquainted with Pauloni, an Italian itinerant lithomith, he travelled with him, as an assistant, for some years; but having at length, from observation, acquired the art of cutting for the frowns and of curing rupitces, he separated from him, and soon became celebrated for his skill in both those arts. Though illiterate, and totally unacquainted with anatomy, yet he is said to have considerably improved on the method of operating used by his master; and even to have approached very near the mode now followed by the most celebrated furgeons. Following the steps of Pauloni, he visited in turn all the principal cities on the continent. In 1665, he went to Paris, where he at first operated with success, but failing in some cases, he went to Geneva, Aix-la-Chapelle, and Amsterdam; in each of which places he was much respected to; for having both improved his instruments, and his mode of using them, he was now generally successful. He next went to Strasbourg, where he cut successfully a great number of patients, then to Venice, Padua and Rome, every where acquiring additional fame and reputation. He was of a singular disposition, and wore a sort of monkish habit, whence he became generally known by the title of Friar James. He at length settled in a village near Belfancr, where he died, 1720, being sixty-nine years of age. In gratitude for the numerous cures he had performed at Amsterdam, the magistracy of that city caused his portrait to be engraved, and a medal to be struck, bearing for impress his bust. Haller Bib. Chirurg Gen. Biog. Dict.

BAULTE, in Geography, a river of Pruflia, which runs into the Frith Hafl, a little below Frauenburg.

BAUM, in Botany. See MELISSA.

BAUM, Balsard. See MELITIS.

BAUM, Molucca. See MOLUCCAL.
In 55 places deep and 60 wide, and covered with a kind of vaulted roof, from which water continually drops. In this grotto is a small brook, that is said to be frozen in summer and not in winter. When the peasants observe a mill rising from this cavern, they predict rain on the following day.

Baur, in Oryibouz, the name of the bernacle goose; And Helenica, in Frijh, H.H. Birds.

BauHGANGS, Alexander Gottlieb, in Biography, an eminent philosophical writer, was born at Berlin in 1744, and educated at Halle. He here distinguished himself by his private Lectures in philosophy; and after having officiated for some time as extraordinary professor he was invited in 1752 to be professor of philosophy at Frankfurt on the Oder. His constitution, being naturally feeble, was much impaired before the year 1751, by close application to study, and his infirmities were aggravated by the toils of a great part of his property, during the bombardment of the fortress of Cahirin, which he had fled for shelter. In 1750, his health being in some degree restored, he returned his labours with new ardour; but in 1762 he was carried off by a stroke of the apoplexy; having established the character of an acute and found philosopher, who united to an extenfive acquaintance with the sciences, a distinguished accuracy of judgment, and an agreeable cheerfulnes of temper. His principal works are "M Iphophica," Halle, 1759, 4 to., 8 vo., published in Germany by Meyer, with many alterations, and reprinted by Prof. Eleuther. "Ethica Philosophica," Halle, 1749, 1751, 8 vo.; "Lectura," Frankfurt in Oder, 1750, 1755, 8 vo., and "Bibliotheca Philophoica Prapriac," Frankfort on the Oder, 1760, in 8 vo. B. Bing.

BauHGARTEN, Nicolaus Jacob, brother of the above, was born in 1706 at Weinhalt on the Oder, and having studied at Halle became of the society. He died in 1757; he was a man of great learning, and many of his writings have been published into German.

Baukur, in Geography, a town of Germany, in the archbishopric of Mainz, in the duchy of Pfalz.

Bauucar, a town of Bessarabia, is the circle of Chernigow, 3 miles from Burscha.

Baumholsker, a town of Germany, in the circle of Upper Rhine, and Duchy of Deux Ponts, 12 miles west of Laufersweil, and 25 north of Dusseldorf. Since the French revolution, it is the chief place of a canton in the department of Sarre, and district of Berthelf. The place contains 695 and the canton 6111 inhabitants; the territory comprehends 33 communes.

Baumwald, a forest of Prussia, on the borders of Lithuania, about 10 leagues long and 7 wide.

Bauach, a town of Germany, in the circle of Franconia, and bishopric of Bamberg, near the river Main; 7 miles north of Bamberg. This is also the name of a canton of Swabia, so called from the river Bamach, which runs into the Main.

Bauosa, in Ichthyology, a name given by the Italians to a species of Ray, called by modern naturalists "Raja Oxyrincus," which is.

Bauota, Patavina, in ancient Geography, a town of Italy, in Cappadocia.

Baur, Bawr, or Bouwer, John William, in Biography, an eminent painter of landscape and architecture, was born at Straubing in 1610. After having been the disciple of de Bredell, he went to Rome for improvement; but though he possessed great genius and fertile imagination, and resided for a considerable time in and about Naples and Rome, where he devoted himself entirely to architecture and landscapes, he retained the German taste in all his figures, and neglected the study of nature or the antique; so that he never arrived at a grandeur of design. However his pencil was light, his composition good, and his general expression beautiful, though his figures were somewhat heavy. His paintings in water-colours on vellum are held in the highest estimation. For the duke of Bracciano, at whose court he resided for several years, he finished some charming perspective views of gardens, with statues and fountains, and a number of elegant buildings, with many figures, coaches, cattle, and hortusmen; and he generally distinguished people of different nations by their appropriate dresses. This artist also engraved a great number of plates from his own designs. His engravings from the Metamorphoses of Ovid are generally preferred to the rest. They are slightly etched, and touched with the graver. The figures are small, and incorrectly drawn. The background is dark and heavy, and the trees are defective of that lightness and freedom, which would render the effect agreeable. His pieces of architecture are well executed, and the perspective finely preferred. In his style of engraving he feems, in some degree, to have imitated Callot, and the nearer he approaches it, the better are his productions. The Metamorphoses contain 150 middle-sized plates. Baur died at Vienna in 1640. Fick, Proctor, and Strutt.

Baurac, an ancient name for nitre, but in some places used in a reftraint sense, as not signifying every thing that was called by that name, but only one of two different salts that were confusedly called nitre.

The Arabs give the name baurach to tincar or tincal, which when refined is called borax, but when it is rough, in little crystalline masses like the small crystals of soda, mixed with earth or other impurities, it is always distinguished by the name of tincal. Neumann, p. 227. See Natrium.

Baurinkel, in Geography, a town of Germany, in the circle of Wettphalia, and county of Liigen, 6 miles N.E. of Liigen.

Bausch, Leonard, in Biography, a physician of Schweinfurt, in Franconia, acquired considerable reputation by his commentaries on the works of Hippocrates, published 1594, folio, at Madrid. His son, John Lawrence Bausch, born at Schweinfurt, September 30th 1665, after the usual school education at home, visited the principal seminaries in Germany, France, and Italy, and was made doctor in medicine at Altdorf in 1700. He had the merit of forming a society of physicians, in 1652, who met at stated periods, and communicated such observations in philosophy and medicine as occurred in their practice, and seemed deserving of being preserved. This, in time, gave birth to the Academia Naturae Curiosorum, of which he was the first president, and in 1671 they began to publish their memoirs, under the title of "Milestone Curiosi Medicino-Physica, Academia Naturae Curiosorum," 4to. The society still continue their meetings, and have published near seventy volumes of the Mecifiany. Haller Bib. Med. Prat. Eloy, Dict. Hall.

Bauschouwitz, in Geography, a town of Silesia, in the principality of Neisse, 8 miles E. N. E. of Neisse.

Bausk, or Bautko, a town of Courland seated on the river Mula, on the frontiers of Poland. It was taken by the Swedes, under Guifavar Adolphus, in 1625, and by the Russians under Czar Peter, 1705, after a bloody battle between the Russians and Swedes. N. lat. 56° 30'. E. long. 24° 44'.

Bausset, a town of France, and chief place of a canton in the department of the Var, and district of Toulon. The place contains 2980 and the canton 12,285 inhabitants, the territory includes 270 kilometres, and 5 communes.

Bautsch, a town in Moravia, in the circle of Praha, 18 miles N. of Praha.

Bautzen, or Buderschin, the capital of Upper Lusatia.
fatia, in Germany, situated in the circle of Bawden, on the river Spree, subject to the elector of Saxony, and fortified by a citadel, called the Castle of Ortenburg, standing on a high rock, and separated from the town by a ditch and ramps. This citadel was founded before the town, which had its rise in the 9th century. This town had formerly a considerable manufacture of linen, hats, stockings, and gloves, and also of glazed leather, cloth, flufian, &c. It has frequently suffered much from fire. It was taken by the Prussians in 1757; and after their retreat, taken possession of by the citizens. The Lutherans and Catholics are allowed the free exercise of their religion. N. lat. 51° 10'. E. long. 14° 42'.

BAUX, Les, or BAUX, in Latin Balium, a town of France, in the department of the Rhone, and chief place of a canton in the district of Tarascon, leant on a hill, having a strong castle, formerly an independent barony, and afterwards a marquise. N. lat. 45° 42'. E. long. 5° 0'.

BAUX Island, a name given by captain Marchand to a small island of the Pacific ocean; being one of the group called Herne's Islands, near the Marquesas, and denominated by Hergriff, Sir Henry Martyn, of Island, which he first.

BAUZEL, St., a town of France, in the department of Aveyron and district of Milka. The place contains 823 and the canton 5870 inhabitants; the territory includes 2434 square miles and 12 communes.

BAWD, a person who keeps a place of prostitution, or makes a trade of debauching women, and procuring or conducting criminal intrigues. Some think the word is derived from the old French bours, bold or impudent; though Verdegan has a conjecture which would carry it higher, viz. from boute, Anciently written bolt, in which feorte, bawd, originally imported no more than bath-holder, as if bagnios had anciently been the chief scenes of such prostitution. The Romans had their male as well as female bawds; the former denominated lenones and proagogi, among us pardoners; the latter, lune.

By a law of Conflantine, bawds were to be punished by pouring melted lead down their throats.

BAWDER, in Geography, a river of England, which runs into the Twees, about 3 miles N. N. W. of Barnard castle, in the county of Durham.

BAWD-MONEY, in Botany. See AETHUSA MELAN M. BAWDSEY HAVEN, in Geography, a small bay or anchoring place near the south point of the coast of Suffolk, formed by the ocean, and the mouth of the small river Deben, about a league to the east of Languard fort.

BAWDY-HOUSE, a house of ill-fame, to which lewd persons of both sexes resort for the purpose of licentious and criminal indulgence. House of this kind, under the denomination of brothels and hews, are licenced in some countries; and in England they were privileged by patent, regulated by statute, and tolerated as a necessary drain for corruption, from the reign of Henry II. to the half year of Henry VIII., when they were suppressed by found of trumpets; and their suppression was perhaps attended with greater solemnity than that of the convents. Their suppression, however, failed to extirpate lewdness; and Latimer (Sermons, p. 45), whose sermons are replete with a harsious eloquence, inveighs bitterly at its sublquent prevalence. In 1650, the repeated act of keeping a brothel, and also of committing fornication, was upon a second conviction, made felony without benefit of clergy. But at the restoration, when hypocrisy devoured into the extreme of licentiousness, it was not thought proper to renew a law of such unfashionable rigour. The keeping of a bawdy-house is cognizable by the temporal law, as a common nuisance, not only because it endangers the public peace by drawing togethether dissolute and debauched persons, and promoting quarrels, but because it tends to corrupt the manners of the people by an open profusion of lewdness. (3 Inst. 292. 2.) Those who keep bawdy-houses are punished with fine and imprisonment, and also such infamous punishment, as pillory, &c. as the court shall inflict; and a lodger, who keeps only a single room for the use of bawdry, is indictable for keeping a bawdy-house. (1 Salk. 582.) Persons resorting to a bawdy-house are punishable; and they may be bound to their good behaviour. But if a person he indicted for keeping or frequenting a bawdy-house, it may be expressly alleged to be such a house, and that the party knew it, and not by sufficiency only. (Poph. 268.) A man may be indicted for keeping bad women in his own house. (1 Hawk. P. C. c. 61. § 2.) A confable, upon information that a man and woman are gone to a lewd house, or about to commit fornication or adultery, may, if he finds them together, carry them before a justice of peace without any warrant, and the justice may bind them over to the feisions. (Dalt. 294.) Constables may enter bawdy-houses, call others to their assistance, and arrest the offenders for a breach of the peace. In London, they may carry them to prison, and by the common of the city, whores and bawds may be carted. (3 Inst. 266.) By that

25 Geo. II. c. 56, made perpetual by Stat. 28 Geo. II. c. 19. if two inhabitants, paying leot and lot, shall give notice to a constable of any person keeping a bawdy-house, the constable shall go with them before a justice of peace, and shall, upon the oath of such inhabitants, that they believe the contents of such notice to be true, and their entering into a recognizance of 201. each, to give material evidence of the offence, enter into a recognizance of 30l. to prosecute with effect such person for such offence at the next seions. The constable shall be paid his reasonable expenses by the overers of the poor, avertainable by two justices; and upon conviction of the offender, the overers shall pay the two inhabitants 201. each. A constable, neglecting his duty, forfeits 201. Any person appearing as master or mistress, or as having the care or management of any bawdy-house, shall be deemed the keeper of it, and liable to be punished as such. A wife may be indicted and set in the pillory with her husband, for keeping a brothel; for this is an offence respecting the domestic economy and government of the house, in which the wife has a principal share; and it is such an offence as the law presumes to be generally conducted by the intrigues of the female sex. (1 Hawk. P. C. 2, 3.)

BAWLING, among Hunters, is spoken of the dogs, when they are too noisy before they find the feent good.

BAWN, or BAN, derived from the Teutonic bawen, to construct and secure with branches of trees, in Antiquity, an area inclosed with thick ditches of earth square or circular, impaled with wooden stakes or branches of trees, and surmounted with a deep trench. This was called in Irish daingean, a word of Celtic origin. Numerous remains of such fortresses are found not only in various parts of Ireland, but also in Britain, Germany, Sweden, and almost every country of Europe. The Irish gave great trouble to the English for many centuries by fortifying paries between the bogs and mountains in this manner, so that it was a tedious work to cut through them, and make the roads passable. This was called ploughing a path, from the Franco-Gallic word ploufer, which, like brawn, signifies to entwine: and it consisted in securing the top of the culm with fleeks interlaced with branches. Before the English invasion, each family of the Irish was supplied by Mr. Ledwich, to have lived in a mud cabin surmounted by a bawn. The English introduced castles, in which they were inhabited by the natives. In course of time, brawn came to signify an inclosure with a wall, instead
of plated flakes; and we find queen Elizabeth and James I. requiring those to whom grants were made, to construct cairds with bases, or courts round them, for the protection of their families and tenants. When the grant was not very considerable, a bawn with a house within it was sufficient. Of the latter kind was Hamton Court, in the county of Arundel, which is mentioned in Dean Swift's novels, and which now gives name to a village in that county. This was built of lime and stone, eighty feet square, with two round towers, for gunners, and two stories high, vaulted, the wall itself being thirteen feet high. Within the bawn was a house of lime and stone, thirty-six feet long and twenty feet broad. Further particulars may be found in Ludowick's Antiquities of Ireland, p. 168—176.

BAWROR. In Geography, a town of Red Russia, in the palatinate of Lemberg, 64 miles east of Lemberg.

BAWT, a town of Peria, in the province of Ilak-Agami, 80 miles north of Itchan.

BAWTRY, a market-town in the west riding of Yorkshire, and on the confines of Nottinghamshire. In England, is situated on the high road to Scotland, and confines principally of one broad street, well furnished with inns. It is 80 miles from Doncaster, and 132 miles from London. The river Idle confused a considerable trade from Derbyshire, of food and grime-dolies, as well as lead and iron ware from Markfield, which are conveyed hence to Hull and other parts of the country. The market is held on Wednesday and Saturday; and the town has also three annual fairs. Its houses are 154, inhabited by 798 persons. Nor. lat. 56° 42'.

BAXA Terra, or Baxer Bay, lies on the west coast of Africa, 4 leagues south of the river Otro, which is in Nor. lat. 26° 29'. It is large, and has in several places good anchorage, especially on its northern side.

BAXAS. Bama, lies on the coast of Brazil, in South America, and lies E. and E. by S. from the land-bank of Tamarindo, or Turtle harbour. It has good anchorage, harbours, and good water; and it is well provisioned by a band of vessels from the north wind, and by the land from all other winds.

Baxa, Dra. Porta, denoting a cape of Great Britain, is a low point, 12 leagues from the Inner, and 18 from the Torbay.

BAXTARO, Cape, is situated in the Indian Ocean, in Nor. lat. 18° 41'. E. long. 135° 8'.

BAXOIAS. Antic. or Usk, are two villages of rocks, on the south coast of the island of Ceylon, called the Great or Little Baffes. The former is in Nor. lat. 6° 16'. E. long. 81° 52'; and the latter in Nor. lat. 6° 25'. E. long. 85° 2'.

BAXOES A. Abolos. See Abolos.

Baxos de Llano. See Aboles.

Baxos de la Candeleria, a fine or reef of rocks, in the Pacific ocean, so called by Malaiva in 1567, and lying, by M. Hurter's calculation, near 13°. 64', and E. long. from Paris 157° 7'.

Baxos, Cape, or Las Cabo, is the end point of the entrance into the river Sado, on the coast of Algarve. It lies west of both Cape Tenafos and Panaos island, 2 leagues distant from the latter. On the end of this cape are several dangerous rocks, one of which has no water, and should therefore be carefully avoided by the trading ships that navigate in these parts.

Baxos, Cape, is also on the coast of Africa, southward of the river Colon, 2 leagues from the Quatre Montes, or hill called the Cape is old together.

BAXTER, Richard, in Biography, an eminent divine among the non-conformists of England, was born at Rowton, a small village in the county of Salop, in 1615. His father was a small holder of exemplary character, who, though belonging to the Established Church, was charged with puritanism on accout of his religious demeanour. Under his instruction and example, Baxter manifested early indications of that contemplative and pious disposition for which he was afterwards distinguished. In his youth he enjoyed few advantages for education; the schools from which he attended being more of little learning and boorish morals. But under the tuition of Mr. Wickstead, chaplain to the council at Ludlow, he had access to an excellent library, of which he availed himself on a year and a half very much to his improvement. At this time his views were directed to the profession of a minister. However, in 1633, Mr. Wickstead prevailed upon him to relinquish this object, and to seek his fortune at court. Accordingly he was recommended to sir Hen. Herbert, master of the revels; but disdaining with the mode of living which this situation presented to him, he soon retired into the country, and resumed his purpose of prosecuting his studies for the ministry. Being appointed master of the free school at Dudley, his health declined; and under the impregnation produced by the immediate prospect of dissolution, and by the perusal of several practical treatises, he acquired that deep and setted sense of religion which formed the ruling and permanent principle of his future life. Being more than ever determined to engage in the ministerial office and having at this time no scruples against conformity to the Church of England, he was ordained in 1638; though he afterwards condemned his precipitancy in complying with the laws of subscription without due examination; and he frequently preached at Dudley and in the neighbourhood villages, much to the satisfaction of those who heard him. He objected, however, to some of the ceremonies of the church, and he soon began to entertain doubts concerning the lawfulness of conformity. What led him and several others to study the cafe of episcopacy, and to think unfavourably of the establishment, was the imposition of the "et extra" oath, which expressed an universal approbation of the doctrine and discipline of the church of England, and a determination never to attempt any alteration in its government. Mr. Baxter demurred against taking this oath; and though he would have submitted to the ecclesiastical jurisdiction that was actually established, he could not conscientiously declare his approbation of it, and his determination to support it to the extent which this oath required. In 1645, he was invited by the principal inhabitants of Kidderminster to reside with them as a preacher; and this place became the scene of his ministerial services for about fifteen years. Such, indeed, was the success which attended them, that he was eminently useful in reforming the morals of the district, and in promoting in the town and its neighbourhood a spirit of religion. About two years after his settlement at Kidderminster, the civil war commenced; and on this occasion he took part with the parliament, and recommended the prostitution prescribed by it, to the people. He was thus reduced to the necessity of leaving this town, and of repeatedly changing his residence, till at length infested at Coventry, where he preached regularly once a week both to the soldiers of the garrison and to the people of the town. After the battle of Naseby, he became chaplain to the regiment of colonel Whalley, and attended it at several sieges, though he was never present in any engagement; so that the story of his having killed a man in cold blood, and robbed him of a medal, was an unfounded and scandalous fabrication. During these times of confusion, Mr. Baxter was a zealous friend to religious government both in church and state; and it is said that he took
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took great pains to reproach the sectaries. The accidental circumstance of a profuse bleeding at the nose, which reduced him to a state of great languor, was the occasion of his being separated from the army in 1647, and of preventing that service to his country, which might have been expected from a person of his principles and moderation. However, he relented to the utmost of his power, the manners of those who afterwards usurped the government of the kingdom; he opposed taking the covenant, preached against it, and engrossed, still clinging to the false principles and fictions against the sectaries who came into the kingdom with Charles II.; and therefore the charge alleged against him, of his having been a trumper of rebellion, is altogether without foundation. When Cromwell assumed the supreme power, he boldly and openly declared, that he disliked his usurpation; and in a private conference expressly told him, that in his opinion the ancient monarchy was a blessing. To that form of government, Baxter always avowed his attachment; and in a sermon preached before the parliament on the 30th of April 1666, the day preceding on which they voted the king's return, he maintained, that loyalty to their prince was a thing essential to all true protestants of whatever persuasion. About the same time he preached a thanksgiving sermon at St. Paul's, on occasion of the success of general Monk; and this circumstance refutes the charge of his having diffused his excellency from pursuing in, or bringing about that change.

After the restoration, Baxter was made one of the king's chaplains, and was always treated by him with peculiar respect. To his majesty he spoke with the same freedom which he had used with the protector Cromwell. He strongly represented the great importance of tolerating those pious men who entertained doubts concerning the ceremonies and discipline of the church; and he observed, that the late usurpers had so well understood their own interest, that they had found the way of doing good to be the most effectual means to promote it; and therefore he besought the king that he would never suffer himself to be tempted to undo the good which Cromwell or any other had done, because they were usurpers that did it; and on the contrary, that he would rather outgo them in doing good. At the Savoy conference he was one of the commissioners, and was employed in compiling the reformed liturgy. Having declined the preferment of the bishopric of Hereford, which was offered him, he wished to retire to his friends at Kidderminster, and to officiate among them in the humble station of a curate, but was not permitted. Disappointed with regard to the object of his wishes, he preached for some time occasionally in London; but the act against conventicles obliged him to retire first to Acton, and then to Totteridge. During the persecution of the non-conformists, he preached, as opportunity offered, and the state of the times allowed, either more openly or more privately; and he was sometimes a sufferer for his zeal, and sometimes unmolested. After the indulgence of 1672, he chiefly resided in London, and exercised his ministry, either occasionally or flattered, but not without interruption and molestation. To the sufferings attendant on his preceptor were added the infirmities of a feeble constitution, and frequent bodily disorders, together with the loss of the greater part of his fortune, in consequence of the starving up of the exchequer in 1671, and by the penalties inflicted upon him for the exercice of his ministry; but he bore all these evils with singular fortitude and patience. In 1684, he was treated with peculiar severity. Although he was so ill as not to be able to stand, a warrant was granted against him, in order to his being bound to his good behaviour; and the confidables who were entrapped with his execution, watched him so incessantly, that they prevented him passing from his study to his bed-chamber; and by thus depriving him both of food and sleep, at length effected their purpose, though they were not empowered to break open doors, and took him away to the Seilion-house, where he was bound in the penalty of 400l. to keep the peace; and he was brought up twice afterwards, though he kept his bed during the greatest part of the time. In 1685, he was committed to prison by the request from lord chief-judge Jeffries, for his paraphrase on the New Testament, which was charged with being hostile to episcopacy, and brought to trial for sedition. In the course of this trial, he was treated with all the brutal infolence and tyranny, to the exercise of which that ruffian of the law, Jeffries, was accustomed; reviled by his judge in the grossest terms, and prevented from obtaining the full defence of his counsel; and at last found guilty on the most frivolous grounds, and sentenced to pay 500 marks, to lie in prison till he paid it, and to be bound to his good behaviour for seven years. From this heavy penalty, however, after a confinement of several months, he was released, in 1686, by king James, and allowed to remain in London, notwithstanding the provisions of the Oxford act. From this time he lived in a retired manner, neither interfering in the concerns of his party, nor taking any part in those addresses which some of his brethren presented to James II. on his indulgence. He perished, however, in the performance of his ministerial duties, till increasing weakness confined him to his chamber. The close of his life corresponded to the uniform tenor of it; the approaches of dissolution were regarded by him with pious resignation; and he died, with the tranquillity and hope appropriate to his exemplary character, on the 8th of December 1691. Urged by extreme pain to wish for a release, he checked himself by saying, "It is not fit for me to preferable; when thou wilt, when thou wilt, and how thou wilt." To one who asked him in his sickness how he did, he replied, "Almost well." In 1692, Mr. Baxter married the daughter of Francis Charlton, Esq., a distinguished magistrati of the county of Salop; a woman of great piety, who entered thoroughly into his views concerning religion, and cordially approved all the sacrifices which he made from a conscientious regard to duty. She accompanied him in prison, and submitted, without repining, to all the hardships consequent upon the persecution which he suffered. She died 10 years before him. "Richard Baxter was a man whose whole soul was engaged in his profession. Ardent piety towards God, zeal for the best interests of his fellow-creatures, were the active springs of his conduct; and few men have ever devoted more time and labour to those objects. He passed a life of much contention and obloquy; but at this cool distance, no candid enquirer can mistake his true character. His early studies in divinity were not, perhaps, the best adapted to form a theologian. They confined chiefly to the schoolmen and metaphysicians of a dark age, and gave him a turn to subtleties of distinction, which made him fland apart in some theoretical points from all his contemporaries. Yet, in practical religion, the devotional warmth of his temper allied him to the pious of all denominations, and inspired him with an enlargement of mind, which let him above the differences resulting from petty controversies. He was a most voluminous writer, and his works are sufficient to make a library of themselves. Above 145 distinct treatises of his composition have been reckoned up; of which 4 were folio, 73 quarto, and 49 octavo, besides several others of a smaller size. They comprise bodies of theology, practical and theoretical, besides a vast number of tracts on particular topics." His practical works have been collected together in.
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in 4 vols. in folio. His income, it is said, which was not great, was increased by the profit which he made of his writings, for which he sometimes received 60 or 80 l. a year of the booksellers. But this money he seems to have employed for charitable purposes. Of his numerous works some of the principal were his "Methodus Theologicorum," printed in Latin in 1654, folio; his English body of practical divinity, published in 1673, folio, under the title of "The Christian Directory," &c.; "Cædes Salvatorum, or the Reformed Pastor," 1678, much esteemed by many divines; "Universal Concord," 12mo. 1678, giving an account of the terms upon which all Christian churches may hold communion; "Reasons for the Christian Religion," 1672; "Catholic Theology," fol. 1675, intended to reconcile the differences between the Arminians and the Calvinists; "A Treatise of Episcopacy," 4to. 1681; "A Treatise of Universal Redemption," 1680. The most popular of his practical pieces were his "Saints' Everlasting Rest," and his "Call to the Unconverted," of which latter 20,000 were sold in one year, and it was translated into all the European languages, and into the Indian tongue. To these which we have enumerated, we may add his "Reformed Liturgy," his "Poor Man's Family Book," his "Dying Thoughts," and his "Paraphrase on the New Testament." The first book he published was his "Aphorisms of Justification" and the "Covenants," printed in 1649; and the last in his lifetime, "The Certainty of the world of Spirits," printed in 1691; so that he was an author 42 years. One of his works is "A Narrative of his own Life and Times," in which, though a chapbook, says Mr. Granger, "composed in the manner of a diary, contains a great variety of memorable things, and is itself, as far as it goes, a history of non-controversy." Mr. Baxter was a distinguished, able, not only as a practical, but also as a controversial writer; and under this latter character, he particularly opposed the Antinomians. Few persons have suffered more unanswerable abuse than Mr. Baxter; and few have been more highly respected both by his contemporaries and posterity. Among his friends and admirers we may reckon some of the most distinguished characters of the age in which he lived, of whom many were members of the establishment, such as chief justice Hale, Sir John Maynard, Dr. Barrow, bishop Wilkins, bishop Park, and bishop Burnet. The great chief justice Hale honoured him with an intimate friendship, gave a high encomium of his piety and learning to all the judges, and when he was in prison, on the Oxford act, let him a legacy in his will, and several large books, in his own hand-writing, on the matter of their conversations. Dr. Barrow has testified concerning his works, "that his practical writings were never mended, his controversial seldom confuted." Bishop Wilkins affirms, "that he has cultivated every subject which he has handled," and he used to say of him, "that he never lived in the primitive times, he had been one of the fathers of the church. Bishop Burnet's testimony is somewhat qualified. "Baxter," he says, "was a man of great piety, and if he had not meddled in too many things, would have been esteemed one of the learned men of the age. He was a very moving, and pathetic way of writing, and was his whole life long a man of great zeal, and much tempation; but was most unskilfully fecular and metaphysically in every thing." Baxter was one of the last divines, whose name, distinguished a particular demonstration or description of persons. See BAXTERIAN. Bayley's Life of Baxter. Biog. Brit. Chron. Biog.

BAXTER, William, an eminent philologist and antiquarian, was the nephew and heir of Richard Baxter, and was born of parents in mean circumstances at Leighton, an obscure village of Shropshire, in 1632. He traced his pedigree, like a true Cambro-Briton, through a long line of ancestors from John Baxter, who, in the reign of Henry VI., settled at Shrewsbury; and he knows, that the name Baxter signifies originally a baker, in Latin "Excellere," and that it was given to that family, because they were bakers to the ancient princes of Wales, in which post, according to the custom of the ancient Celts and Greeks, the nobble persons were employed.

In his infancy and youth, his education was so much neglected, that when he was sent to Harrow School at Middlesex at the age of 18, he knew not one letter, nor understood one word of any language but Welsh. Yet such were his talents and application, that he soon became distinguished by his extensive knowledge. In 1657, he published a Latin grammar, entitled "De Analoge, seu articulo Latinae linguae commentariis," &c. 12mo. Thus qualified for the profession of a schoolmaster, to which he devoted himself, he employed the greatest part of his life in this occupation. For some years he kept a boarding school at Tottenham High-cross in Middlesex; and he was afterwards elected master of the preacher's school in London. Having acquired great celebrity as a scholar, and in the prosecution of antiquarian researches, and distinguished, perhaps, more by his learning than his judgment, he died in 1733. In 1695 he published a new and corrected edition of "Ameron," with notes, which was reprinted with considerable additions and improvements in 1710. His abode of Tanaquil Fibe, a former editor of Ameron, was amply restored upon himself by J. C. Wilkins de Paro, in his 4to. edition of the same post, published at Utrecht in 1733, in which held his comments in great contempt. His edition of "Homo," printed in 1701, and reprinted with improvements in 1722, has obtained a more lasting reputation. Dr. Harwood pronounces this the best edition ever published, and the learned Gefner has testified his approbation of it, by making it the ground-work of his excellent edition Bentley, famed for the facility of his criticism, in speaking of it, calls Baxter "Vir reconditissimus." In 1717 Baxter published his dictionary of British antiquities, under the title of "Glossarium Antiquitatum Britannicarum, five syllabus etymologicus antiquitatum veterum Britannic et atque Germaniae, temporibus Romanorum," 8vo. By his skill in the British or Welsh tongue, and by means of etymology, he professed to correct Camden, and to add about 250 names of ancient places and rivers omitted in his Britannia; of this work, a second edition was published, after the author's decease, in 1733. His glossary of Roman antiquities, proceeding no farther than the letter A, was published in 1726 by Mr. Mofes Williams, under the title of "Reliquiae Baxterianae," &c. and republished in 1751, with the title "Glossarium Antiquitatum Romanorum," Lond. 8vo. Baxter also wrote four letters on subjects of antiquity, inserted in the first volume of the "Archaeologia." He left behind him notes on Periplus and Juvenal, and was the translator of many of Plutarch's lives "done into English" by his faithful hands. Biog. Brit.

BAXTER, Andrew, an ingenious metaphysician and philosopher, was the son of a watchman at Abirnken, and born there in 1686 or 1687. He was educated in King's college in that city, and afterwards undertook the care of private pupils, some of whom were pupils of John and Baxter. About the year 1735, he published in 4to. his celebrated work, entitled, "An Enquiry into the Nature of Human Souls; wherein the Immateriality of the Good
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Soul is evinced, from the principles of Reason and Philosophy." This work, which was reprinted in 2 vols. 8vo. in 1737 and in 1745, was much applauded by several persons of eminence, and particularly by Bishop Warburton, who, in his "Divine Lyegation," speaks of it as containing "the justest and precitious notions of God and the Soul," and "as one of the most munificent of the kind, that the present times, greatly advanced in true philosophy, have produced." Of the author's sentiments, see some account under the articles Dream, Soul, and Vis Inertia. In 1741 Mr. Baxter went abroad with one of his pupils, and settled for some time at Utrecht, where he became acquainted with several of the literary persons, and whence he made several excursions into Flanders, France, and Germany. Upon his return to Scotland in 1747, he died till his death at Whittingham, in the shire of East Lothian. His work entitled "Matho, Five Coelestheria Pucrilis," was drawn up for the use of his pupils, and first printed in Latin, and afterwards greatly enlarged, and published in English, in 2 vols. 8vo. The second edition of this work was published in 1745, and the third in 2 vols. 12mo. in 1755. The design of this work was to deduce the principles of natural religion from the phenomena of the material world. A mistake in the astronomical theory, which the author did not live to rectify, as he had intended, had disguised some readers; and therefore, in the third edition, the conference that was chiefly affected by that error, was suppressed, and the vacancy supplied by another. In 1750 the author published "an Appendix to the first part of his Enquiry into the Nature of the Soul," vindicating it from some objections, which was dedicated to Mr. Wilkes, with whom he formed an intimate acquaintance abroad. In this year Mr. Baxter, having endured great sufferings from the gout, and a complication of disorders, with exemplary patience, closed his life about the sixty-third year of his age. He left behind him several unfinished MSS. on philosophical subjects, and one in a complete state, concerning the controversy between the English and foreign philosophers on the subject of the force of bodies moving in free spaces, which however was never published.

Mr. Baxter's learning and talents are sufficiently displayed in his writings. His application was such, that he sometimes sat up whole nights reading and writing; and yet his disposition was cheerful and sociable. In conversation he was modest and unassuming; and in the discharge of the social and relative duties of life, his conduct was exemplary. His mind was policed with the most reverential sentiments of the Deity, and the general tenor of his life was conformable to the rules of virtue. He was economical without parsimony. Such was his disinterestedness, that he declined considerable offers of preferment, which he might have obtained if he had taken orders in the church of England. His knowledge of the modern languages was extensive; so that he could write and speak in French, German, Dutch, Italian, and Spanish. Before his wife, whom he married in 1724, and who survived him ten years, he had one son and three daughters. 

BAY

Mr. Baxter, nonconformist minister; of whom we have already given an account. His theological system has been called Baxterianism; and those who embrace his sentiments in divinity, are called Baxterians. The Baxterians have endeavoured to strike into a middle path between Calvinism and Arminianism; and to unite both these schemes. They profess to believe in the doctrines of election, effectual calling, and other tenets of Calvinism; and consequently, suppose, that a certain number, determined upon in the divine counsels, will infallibly be favored. This they think necessary to secure the ends of Christ's interposition. But then, on the other hand, they reject the doctrine of reprobation, and admit that our blessed Lord, in a certain sense, died for all; and that such a portion of grace is allotted to every man, as renders it his own fault, if he doth not attain to eternal happiness. If he improves the common grace given to all mankind, this will be followed by that special grace which will terminate in his final acceptance and salvation. Whether the Baxterians are of opinion, that any besides the elect, will actually make such a right use of common grace as to obtain the same, and, at length, come to heaven; we cannot assuredly say; there may possibly be a difference of opinion upon the subject, as they approach nearer to Calvinism or Arminianism. Mr. Baxter appears, likewise, to have modelled the doctrine of justification, and the perseverance of the saints, in a manner which was not agreeable to the rigid Calvinists. Some foreign divines in the 17th century struck nearly into the same path as, and particularly, in France, M. le Blanc, Mr. Cameron, and the celebrated Mons. Amvrault. For a considerable time the non-conformist clergy in England were divided into scarcely any but two doctrinal parties, the Calvinists and the Baxterians. Of late the Baxterians have been less numerous. However, they are still a considerable body, and several persons are fond of the name as a creditable one, who probably go farther than Mr. Baxter did. The name, however, like other theological distinctions, will probably, in a course of time, sink into disuse, till it is either wholly forgotten, or preferred merely in the records of history.

BAY, in Botany. See Laurus.

BAY, Loblolly. See Gorgonia.

BAY, Rose. See Nerium.

BAY, Dwarf Rose, and Mountain Rose. See Rhodendron.

BAY, Sweet Flowering. See Magnolia.

BAY Plum. See Prunus.

BAY, in Building, denotes any kind of opening in walls; as a door, window, or even chimney.

BAY windows are the same with what we otherwise call bow windows.

BAY, in Geography, denotes a little gulf, or an arm of the sea, stretching up into the land; being larger in the middle than, at its entrance, which is called the mouth of the bay. The largest and most remarkable bays are those of Biscay, Bengal, Hudson's, Panama, &c.

BAY, All Saints. See All Saints.

BAY, of Antigua. See Antongil.

BAY, Buffin's. See Battin.

BAY, of Conace. See Cancale.

BAY, Chequit. See Chequitain.

BAY, of Chesapeake. See Chesapeake.

BAY, of Chesaapeake. See Chesapeake.

BAY, of Firth lies on the east coast of New South Wales, or New Holland, in the Pacific ocean, to the north of St. Patrick's Head. The north point of the bay is called Edystone, and the south point St. Helen's. A small rocky island is near the middle of its entrance, on each side of which is an open passage.

BAY, of Fresh Water, lies south of Agression bay in the north part of the gulf of Mexico. N. lat. 30°. W. long. 93°.

BAY of Funday. See Funday.

BAY, of Good Fortune, lies on the north coast of Chaleur bay, which is a large bay of the gulf of St. Lawrence, and on the north east coast of Nova Scotia in North America.

BAY, Hudson's. See Hudson's.

BAY of Lintot, a bay on the south east coast of New Hol-
BAY

land, between cape Palmarion and cape Townshend.  
S. lat. 21° 53', to 22° 30'.  
W. long. 209° 36', to 210° 43'.

Bay of *Islands* lies on the coast of Nova Scotia, on the continent of North America, about 6 leagues south-west from cape St. Mary.

Bay of *Islands* is also a bay on the northern island of New Zealand, in the south Pacific ocean, lying on the north-east coast between cape Brett and cape Pocevke. This bay is large and deep, and has many small islands in it. The boat entrance into the bay is on the west side; within it are several other bays.

Bay of *Islands* is also on the south-east coast of Magellan, towards the western entrance, W. by N. from Upright bay, and E. by S. from the bay of Hoppominent. A cluster of small islands lies in the entrance, and in the east part of the bay: but the boat entrance is between the westernmost of the two islands off the point of Cape Upright, and a small island farther west, where a ship may have fair passage, and anchor in 20 fathoms in soft mud, near the west coast of the cape, in S. lat. 53° 5'.  
W. long. 75° 32'.

Bay of *Isla* is an extensive bay of the gulf of St. Lawrence, on the west coast of Newfoundland, about 8 or 9 leagues to the S. W. from the Belle bay, and 14 or 15 leagues to N. E. from Port aux Prince. The centre of the bay lies in about N. lat. 49° 5'.  
W. long. 58° 15'.

Bay of *Iloilo* is also a bay situated towards the west end of the north coast of South Georgia island, in the south Atlantic ocean.

Bay of *St. Louis*, lies on the Labrador coast, and has cape St. Louis on the north, and cape Charles on the south. It has many small islands; the largest of which is Battle island, in the mouth of the bay. The middle of the bay is in N. lat. 52° 23', W. long. 55° 23'.

Bay de Rochefort, lies on the west side of Lake Champlain, and the flat of New York, 17 miles above Crown-point.

Bay of *Rocks* is a spacious bay of the Arabian sea, which forms a part of the Indian ocean, and lies on the south-east coast of Arabia, with good anchorage for ships.

Bay of *Seven Islands* lies W. N. W. from Moishe river, and about 18 leagues to N. E. from Trinity point, on the north shore of the gulf of S. Lawrence.

Bay of *Shoals*.  
See BAYAS Babet.

Bay of *St. Spirit*, is a large bay of the Indian ocean, on the south-east coast of Africa, on the north of the island and E. of the Malabar. It is sufficiently spacious to receive a fleet of 40 ships, and is called from the river of St. Spirit, or Manne, which enters this bay.

Bay, or *Inlet*, is that part of the bar of where the mouth is.

Bay, or *Harbour*, signifies a port, or port and head, made up of a large basin, to which is a large sea of water; between the shores of a large or branches of an island, by the current of which exten'sed through it or branches, called the *tongue*.

Bay o'er, or *Wade*.  
The wind blows from the land toward the sea, and back again, so that you cannot or cannot see the land. It is also said, among the seamen, that all way, if well placed, is called the *spout*.

Bay, or *Island* colour among horses. It is a strong and perhaps prevalent character in the colour to be associated with a black man, and not with the black or any other colour that apprehends it as a mark. The bay is also most frequently tied with black, and feet up to the knee and back; but, how much it varies in the same animal of the colour, in respect to its esteemed is almost inconstant. There are several kinds of bays, as light bay, dark bay, brown bay, golden bay, dappled bay, &c.

Bay *à mirrur*, the same as *Dapple Bay*.

Bay, among *Sportifien*, is applied to flags, boars, foxes, &c. and also to dogs when they turn head against another. Thus when a flag has been too long pursued, that he is almost exhausted, he turns round, and the hounds defends himself with his antlers, and keeps the hounds at bay, till the sportifien come up, draw off the dogs, and give his name. When a flag takes *tail*, that is, takes to the water, he will defend himself, and keep the hounds for a long time at bay, provided that he fathoms the lake or river so well as to keep the hounds swimming, without going out of his own depth, but if he is obliged to swim at the time, he is up or quite tired, and being surrounded by the dogs, he is inevitably drowned. In fox hunting, when the fox is supposed to have entered the earth, the place of his retreat is soon discovered by the terriers, "laying well at him," provided he has not turned in the earth; but if he has, the terrier and the fox are face to face, and are both baying, or keeping each other at bay; and the contest terminates with driving out the fox.

Bay *fale*, see SALT.

Bay yards, is a denomination sometimes used prominently with *woollen yarn* 10 and 11 W. III. c. 10. 5 G. II. c. 21.  
See YARN, &c.

BAYA, in Geography.  
See BAY, and BAYA.

BAYA, low, marshy land on the Gold coast of Africa, without any towns or people near the shore; 4 leagues W. S. W. from the river Volta, and 8 leagues E. and N. E. from Ningo ground.

BAYA, in Ornithology, Indian gooseberry, or *Laxia indica*, is rather larger than a sparrow, with yellow brown plumage, a yellowish head and feet, a light-coloured breast, and a conic beak, very thick in proportion to his body. This bird is very common in Hindoostan; and is described as furiously feitulous, faithful, and docile; never voluntarily deserting the place where its young are hatched, not even from the society of mankind, and easily taught to perch on the hand of his master. In a state of nature the baya builds his nest on the highest tree which he can find; generally on the palm tree or fig tree, preferring that which overhangs a well or rivulet, forming it of grass in the shape of a large bottle, suspending it on the branches so as to be firm and yet to rock with the wind, and placing it with its entrance downwards, to secure it from birds of prey. This bird is taught with care to fetch a piece of paper, or any small thing which its master wants. If a ring be dropped into a deep well, and a signal given to the bird, he will fly down with astonishing celerity, and bring it up to his master with apparent volition; and it is sufficiently affected, that if a house or any other place be thrown to him once or twice, he will carry a note thereto immediately, without ever returning a proper signal. They are also trained by the youthful librarians of libraries to pluck off the pieces of gold called tics, placed by way of ornament between the eyes of, or under the frills, which they bring in triumph to their masters. The baya's natural food is grasshoppers and other insects; but it is equally well, when tame, on pulse macerated in water. The female lays many beautiful eggs, resembling large seeds, white, when boiled, transparent, and of the flavour of them is equably delicate.  
*Atlasses and Geographies*, vol. 3. p. 109.

BAYAgARES, in Geography, a town on the island of St. Domingo.

BAYANO, called also St. Salvador, a town in the eastern part of the island of Cuba, having the town of Almo to the west, and St. Barbara to the south. It lies on the east side of F. 2.
of Estero river, about 20 miles from the sea; and it gives name to a channel, that runs between the numerous small islands and rocks, called "Jardin de la Reyna, or Queen's gardens," on the north-west, and the islands and rocks that line the coast on the south-west side of it, from the bold point called Cabo de Cruz.

BAYARD, or BAIZE, in some Old Writers, is an appellative for a horse. Hence the phraces, blind bayard, bayard's wanding, bayard's green, &c.

BAYDORF, in Geography, a small town of the Crimez or Tartar tribes, in the delightful valley, called by the natives the "Tauric Arcadia," the "Crimin Tempe," &c. which is watered by two gentle murmuring streams. It is of an oval form, about 20 miles long, and surrounded by high mountains, covered with beautiful woods, intermixed with odorous flowering shrubs. It contains a number of Tartar villages, romantically situated and inhabited by the families of shepherds and husbandmen.

BAYEN, Cape. See BAJADORE.

BAYEUX, Peter, in Biography, a French chemist, was born at Calais in 1725. In 1749, he served under Charas in pharmacy. He gave analyses of the mineral waters of France; and he wrote memoirs on marbles, serpentinite flons, porphyries, granites, jaspers, feldspars, and iron spar. He doubted the existence of the phlegiston of Stahl; and by operating on mercurial precipitates, he found that what are called metallic oxides owe their state, when obtained by calcining metals, to the absorption of one of the constituent ingredients of atmospheric air. This chemist also discovered the fulminating property of metals, when mixed with a very little sulphur; and he showed that tin was not necessarily contaminated by arsenic; that what is used by potters contains copper and antimony, by which it is rendered hard; zinc, by which it is whitened; bismuth, by which it is rendered more durable; and lead, in order to diminish the price. Bayen died at the age of 72 years. Mem. de l'Institut National, &c. vol. i.

BAYER, Gottlieb Siegfr. a celebrated philologist, was born at Konigberg, in Prussia, in 1694, and studied, chiefly, the languages, in his native city, and afterwards at Danzig, Berlin, and Leipzig; at which latter place he took the degree of master of arts in 1717. On his return to Konigberg in the following year, he was appointed librarian of the public library. In 1726 he removed to Peterburg, became professor of the Greek and Roman antiquities in the Academy of Sciences, and acquired an extensive knowledge of the Chinese and other Asiatic languages. In 1738 he was chosen member of the Academy of Sciences at Berlin; and in 1739 he was invited to professor of eloquence at Halle; which he was not allowed to accept, but continued in Ruffia with a considerable increase of salary. He died at Peterburg in 1738. His numerous dissertations on different subjects are inserted in Lichtenhain's "Select. Hiflor. Liter." the "Acta Eruditorum," and the "Comment. Acad. Petropol." &c. His "Museum Sinicum," published in 1732, in 2 vo. 8vo. is a work of great learning and ingenuity. Gen. Biog.

BAYER, John, a German astronomer, flourished at the close of the 16th and commencement of the 17th centuries; but the time and place of his birth are not ascertained. Some have supposed that he was the grandfather of the subject of the preceding article, and that he was born at Augsburg. It was at Augsburg, however, that he published, in 1603, his excellent and useful work, entitled "Uranometria." This is a large celestial atlas, consisting of folio charts of all the constellations, with a nomenclature, collected from all the tables of astronomy, ancient and modern, improved by his own useful invention of denoting the stars in each constellation by Greek letters, in alphabetical order according to the magnitude of each. The stars are thus as easily distinguished as if each of them had an appropriate name; and the utility of this mode of classification has been so much approved, that it has been retained, since Bayer's time, in all the atlases, catalogues, and celestial globes through the scientific world. This valuable work was gradually improved and augmented by the author himself. In the year 1637 Julius Schiller, a civilian, projected by the suggestion of Bayer, and published his Uranographia, under the title of "Celum Superioris Chronogrammar," in which he rejected the heathen names, characters, and figures of the constellations, and inserted in their stead others taken from the scriptures. Accordingly he placed the twelve apostles in the zodiac; and he deduced the southern constellations from the Old Testament, and the northern ones from the New Testament. This innovation, however, tended to embarrass astronomers, and was never adopted. The ancient names were therefore restored in the later editions of the Uranometria of 1645 and 1661. Montucla, Hist. des Math. tom. ii. p. 333. See Catalogue.

BAYERSDORF, in Geography, a town of Germany, in the circle of Frankonia, and principality of Bayreuth, seated on the Rednitz, with a tribunal of justice and a large synagogue; 4 miles north of Erlang.

BAYETTE, in Ichthyology, a French name of the species of Silurus observed by Soninini in the Nile, and figured pl. 27 of his "Voyage en Egypte." It is the same kind which Forciam calls Silurus bajad. It grows to a large size, but its flesh is not much esteemed.

BAYEUX, in Geography, a town of France, and principal place of a district, in the department of Calvados. Before the revolution it was the capital of Belfin, in the province of Normandy, the seat of a bishop, whose diocese included 61 parishes. The cathedral is much admired. The principal commerce is leather. It is seated on the river Aure, about 4 miles from the sea. The place contains 9970, and the canton 15261 inhabitants, in a territory of 86 kilometres, including 19 communes. N. lat. 49° 16' 30". W. long. 0° 42' 51".

The celebrated tapestry of Bayeux, which still exists, and is publicly exhibited at stated periods in the cathedral of the city, is a very curious monument of the state of the art of embroidery at the time of the Norman conquest. It is a web of linen, nearly two feet in breadth, and 342 in length, embroidered with the history of that memorable expedition, from the embassies of Harold to the Norman court in 1055, till his death in the following year. The scenes of this busy period are successively exhibited, and contrast of many hundred figures of men, horses, beasts, birds, trees, hedges, cistals, and churches, with inscriptions over them explanatory of their meaning and history. This work is understood to have been performed under the direction of Matilda, consort to William I, and was not improbably executed by the hands of English women, whose superiority in performances of this kind was then universally acknowledged. The entire contents of this tapestry are represented in a series of engravings, which may be seen in Montfaucon, tom. 1 & 2; and Ducarel, Anglo-Norman Antiquities, App. No. 1.

BAYE, or BAFE, Lazzare De, in Biography, was the son of a gentleman of Anjou, and having studied under Budreus and others, he pursued the profession of the law at Paris; and afterwards travelled into Italy, and learned Greek under Mufurus, a Candiat, at Rome. Upon his return he devoted himself to literature, and retired to his own estate at Arjou. In 1531 he was sent by Francis I as ambassador to Venice;
In 1539 he was deputed on public business to Germany; and after his return was made master of requests, and had also the abbacies of Grenetiere and Charroux. The precise time of his birth and death is unknown. A writer seems to have been the first who introduced the Greek tragedy among his countrymen, by his translations of the "Electra," of Sophocles, and the "Helena," of Euripides, into French verse. He was also the author of two learned treatises, "De re vetera," and "De re Nova," Paris, 1576, 4to; and he translated some Lives of Plutarch.

Bayle, John Anthony. See BAYLE.

BAYLE. Baja or Bala, in Geography, a town of Africa, in the kingdom of Tunis, not far from the frontiers of the Algiers, is supposed to be the ancient "Vaca" of Sachels, the "Oppidum Vageniens" of Pliny, and the "Bala" of Plutarch; and it is at this day, as it was formerly, a place of great trade, being the chief mart of the whole kingdom, particularly for corn, which is supplied in such abundance by the plains of Budaera, along the banks of the Mejerda, that the Tunisians lay proverbially concerning it, that if there was another such town for plenty of corn, it would become as common and cheap as land. It has also every summer a public fair, to which the most desert Arabian tribes resort with their flocks, their manufactures, and their families. However, the inhabitants, subject to the oppressive exactions of government, and the frequentursions of the Arabs, who are numerous and powerful in its vicinity, are extremely poor, and a great part of their ground remains uncultivated. It is fed on the declivity of a hill in the road to Constantia, about 15 leagues from the northern coast, and 35 W.S.W. from Tunis; and has the convenient of being well watered. On the summit of the hill is a castle of no great strength. The walls, which are railed over the materials of the old Roman Vaca, are still entire, and have some ancient inscriptions. N. Litt. 36. 42. L. 91. 27. Shaw's Travels, p. 92.

BAYLE, Pierre, in Biography, an eminent critic and philopher, was the son of a protestant minister at Carla, in the county of Pau in France, where he was born in 1632. Whilst he pursued his studies, first under his father, and afterwards in the protestant academy at Pluye, whither he was sent in 1654, his application was so acute and uninteresting that he injured his health. His reading was very extensive; but his favourite authors were Plutarch and Murez. From Pluye, he removed in 1660, to the University of Toulouse, with the hope of obtaining superior advantages for improvement, and of making more rapid progress. Here he attended the philosophical lectures that were read in the college of the Jesuits; and his disputations with a good pastor, who lodged in the same house with him, forced him to increase the study which he had already begun to entertain against the prejudices of religion, and induced him to take to himself a new Catholic. This change of opinion, which seemed to be the result of interest, and of conviction, although produced by arguments which no learned examination would discover to be inadequate, manifested an honesty of mind. However it is proved and admitted to his credit, that he withdrew from him the necessary means of subsistence. In their delicate circumstances, he was generally relieved by the bishop of Rieux, who much unseasonably have been gratified by the accession of such a convert. Upon further inquiry Bayle found, that he had been too precipitate in abandoning his religion; and he therefore determined to leave Toulouse after having continued there about eighteen months, and to renounce the errors into which he had been betrayed. Having made his abjuration in the presence of his eldest brother and some other noblemen, he immediately set out for Geneva, in order to prosecute his studies. Here he soon found reason for relinquishing the philosophy of Aris- totle, to which he had been originally attached, and to adopt that of Descartes. His reputation introduced him to an acquaintance with several persons of eminence at Geneva, and particularly with Mr. James Balfage; between whom and Bayle an intimate friendship subsisted as long as they both lived. At this time Bayle required the means of support by private tuition; but dissatisfied with this mode of life, which did not suit the independence of his spirit, nor correspond to his desire of further improvement, he wished to exchange it for some station better adapted to his genius and views. After a few years employed in this way an opportunity occurred for gratifying his wishes. In the spring of 1675 he removed to Paris, and undertook the tuition of Messrs. de Beringhen, brothers to a counsellor in the parliament of Paris. From this city, however, to which his wishes had been directed, he soon removed, at the desire of his friend Mr. Balfage, in order to offer himself as a candidate for the vacant professorship of philosophy in the protestant university of Sedan. His views were encouraged by Mr. Jurieu, the professor of divinity, who favored Bayle, partly because he was anxious to exclude another candidate. Bayle evinced a decided superiority to the other competitors in a public disputation, and having secured his election, began his lectures, Nov. 11, 1675. By the affability with which he discharged the duties of his public office, and by the amiable temper which he manifested in private life, he gained great reputation, and many friends at Sedan; and he devoted his hours of leisure to compositions of the critical kind, which habituated him to that accuracy and depth of reasoning, that afterwards constituted his distinguishing excellence. The first week, which he committed to the press, was his Observations on the comet that made its appearance in December 1664; the first edition of which was printed at Rotterdam in 1662, without a name, and under the assumed character of a Roman Catholic, under the title of "Liste a M. L. A. D. C. docteur de Serbonne," &c. and Colonne was the pretended place of publication. In this treatise, afterwards called "Pentes fac la Comete," as many delicate questions are discussed, relative to supposed miracles wronged, and prejudice given among the heathens, to the comparison of the miracles of atheism with those of idolatry, and to other points which afforded a range to the author's spirit of free inquiry. In 1681 the university of Sedan was suppressed by an arbitrary edict of Lewis XIV; and Mr. Bayle, deprived of his professorship, was reduced to the necessity of seeking some new employment. At this time, the magistrates of Rotterdam established a "Schola Histo- rica," and Bayle was appointed professor of philosophy and history; and at his recommendation Jurieu was engaged as professor of divinity. In December 1685, Bayle entered on his new office. In the next year he published a criticism on Maimbourg's "History of Calvinism," in the form of letters, under the title of "Critique Générale de l'histoire du Calvinisme de M. Maimbourg." This work written in a lively manner, and with a vein of satire, was read with pleasure by persons of the Reformed religion, and it was particularly agreeable to the prince of Condé, who was no friend to Maimbourg. Although it was publicly condemned at Paris, it became popular in Holland, and a new edition of it, with amendments, was speedily published. Jurieu had also published a refutation of Maimbourg; but being much less popular than Bayle's, the author began to regard his brother professor with a considerable degree of jealousy.
had, In 1684 Mr. Bayle was induced, by the freedom of the press in Holland, to print several controversial works, that were sent him from France; and particularly "A collection of some curious pieces relative to the philosophy of Descartes," with a preface, giving an account of these pieces, and containing some reflections on the inquisitorial power exercised in France over books on scientific topics. In this year he began his monthly literary journal, entitled "Novelles de la Republique des Lettres," which was written in a manner that ferved not only to support, but to increase the reputation which he had already gained. About this time he declined an offer of the professorship of philosophy at Franeker, though it was proposed very much to augment the salary which he received at Rotterdam. His "Novelles Lettres de l'Auteur de la Critique generale de l'Histoire du Calvinisme de M. Mainmbourgh," which was a continuation or second part of his former work, and printed in 1685, excited much less attention than the first. Having given an opinion in favour of M. Malebranche in his account of Arnauld's book written against him, he was engaged in a dispute with the latter; and in 1686 he had a correspondence with Christi'an, queen of Sweden, concerning a letter of her majesty's, which he had mentioned in his journal, and which condemned the persecution suffered by the protestants in France. This letter, he had said, was "the remander of the Protestant religion in her." This expression had given some flight offence to the queen, and Bayle addressed to her a letter of apology, in an ample reply the queen declared her satisfaction with his excuses; and adds, "I will lay a penance upon you which is, that for the future you vend me all the curious books, in French, Latin, or Italian, upon all kinds of sciences and all sorts of subjects, provided they be worth reading." Her majesty made no exception of romances or fables, and particularly requested books of chemistry, and the author's journal. Bayle was much affected by the revocation of the edict of Nantes, and the cruelties exercised against the protestants in France for the purpose of inducing them to abjure their religion. Upon this conduct he made some jult and pointed reflections in his journal; and in 1686, he published a pamphlet, entitled, "Ce que c'est que la France toute Catholique sous le regne de Louis le grand," or, a character of France, become entirely catholic under Louis the great. It was published without his name; and contained very severe cenfures on the treatment which the protestants received, as well as on the iniquity and folly of all attempts to procure conversion by force. This was from followed by his famous work, intituled, "Commentarie Philosophique," &c.; or, a Philosophical Commentary on the words: "Compel them to come in." This work was an elaborate defense of toleration, which formed the first part of it; and in the second the author answers all the objections against it. It was followed in the next year by a third part, containing a confutation of St. Auguinik's apology for persecution. The free sentiments expressed in this work gave offence to Jurieu; and though he was ignorant of the author, who had taken pains to conceal his name, he wrote a treatise against it. Bayle's health was so much impaired by the application devoted to the composition of his commentary, and probably also by the vexation occasioned by his controversy relating to queen Christi'an, that he found it necessary to discontinue his literary journal, in the conduct of which he had obtained numerous testimonies of approbation, not only from private persons, but from several societies of learned men, and particularly from the French Academy and the Royal Society of England. His situation also at Rotterdam became unpleasant to him, on account of
Bayle.

Argumentation he had spent his life in acquiring." The text is concise; but the notes, which contain much valuable information, are spun out to a tiresome and interminable length. This dictionary, generally so well received, and containing a variety of unexceptionable matter, displayed the freedom of several kinds, both as to sentiment and dictum, which were not likely to escape censure. Jurieu, the avowed and inimical antagonist of Bayle, attacked it from the press, and endeavoured to procure its condemnation from the ecclesiastical assemblies. The consistory of the Walloon church of Rotterdam contented itself with the detailed objections against particular articles, for which indeed no satisfactory apology could be offered; but satisfied with Mr. Bayle's promise of amendment in a second edition, they proceeded no further. In 1702, Mr. Bayle published a second edition, with many additions. In the following year he wrote a volume entitled, "Réponse aux Questions d'un Provincial," containing an entertaining and instructive variety of historical, critical, and literary observations, to which he added a second and third volume in 1703, and a fourth in 1706. In 1703, he published "A Vindication of his Thoughts on Comets," which involved him in new disputes, particularly with the ingenuous and learned Le Clerc. With his fame, his adversaries multiplied; and attempts were made to prejudice lord Sunderland, the English minister of state, against him, and to prevent the publication of the United States, as a man who was not only an enemy to religion, but chargeable with treason against the government. The form, however, was diverted by the influence of lord Shaftebury. He was offered at this time a liberal provision and hospitable refuge by several persons of distinction in England; but he declined all these generous proposals. The decline of his health made him averse from changing his situation; and towards the close of the year 1706, he was reduced by a pulmonary disorder, which was hereditary, to a very weak state. The approaches of death were regarded by him with philosophical firmness, nor did he interrupt his literary labours to the last period of his life. In the morning of December 28, 1706, when his landlady entered his chamber, he asked her in a faint voice if his fire was kindled, and immediately expired; having attained the age of somewhat more than 59 years.

By his panegyrics, Mr. Bayle's talents, learning, and powers of reasoning have been usually extolled; by his adversaries they have been as little unjustly degraded. M. le Clerc, who belongs to the latter class, and whose judgment is evidently biased by prejudice, has not allowed him the merit to which he is unquestionably entitled. He represents him as so ignorant of geometry, that, according to his own confession, he could never understand the demonstration of Euclid's first problem, and as having written in the latter period of his life, against the evidence of mathematical demonstration. As a reasoner, he says, he had no settled principles, and he argued only with a diligence to puzzle the unlearned reader. His arguments, he adds, contain much more truth and empty words than sound reasoning. He was unacquainted with the books written in England upon experimental philosophy, and understood only a little of the philosophy of Drs. Cartes and Berkeley. He had perused only a few translations of English books upon metaphysical subjects. His knowledge of divinity was derived from his catechism, from sermons, or from a few French books. In ecclesiastical antiquity, and that of Greece and Rome, he was indifferently filled; and the latter were to him hidden treasures; and his knowledge of modern history was partial and imperfect. He had collected with great labour a thousand literary trifles and inconsiderable circumstances; and though he wrote in a very agreeable manner, it was only when he was not in a passion. Saurin says of him, that he was one of those extraordinary men, whose opposite qualities leave room to doubt whether we ought to look upon him as the beast or the work of men. On the one hand, he was a great philosopher, knowing how to distinguish truth from falsehood, and perceiving at one view all the consequences of a principle and their connection; and on the other hand, a great sophist, confounding truth with falsehood, and deducing false inferences from his assumed principles. On the one hand, a man of learning and knowledge, who had read all that can be read, and remembered all that can be remembered; and on the other, ignorant, or feigning ignorance, with regard to the most common subjects, proposing difficulties which have been a thousand times solved, and urging objections which a schoolboy could not make without blushing. On the one hand, attacking the most eminent men, opening a large field for their labours, and giving them a great deal of trouble to vanquish him; and on the other, using the worst authors, to whom he was belov'd of his professees, and disengrafting his works by such names (meaning probably Brantome and Rabelais) as a learned mouth never pronounced.

On the one hand, free at last in appearance, from all the passions which are inconsistent with the spirit of Christianity, grave in his discourse, temperate in his dict, moderate in his manner of living; and on the other, employing all the force of his genius to overthrow the foundations of moral virtue, and attacking as much as his power, chieftly, modesty, and all the Christian virtues. On the one hand, appealing to the throne of the most severe orthodox, going to the purest springs, and borrowing his arguments from the least suspected writers; and on the other, following the paths of heresies, proposing again the objections of the ancient heretarchs, lending them new arms, and collecting together in one age all the errors of past ages. The eloquent preacher closes this detail with the following benevolent wish: "May that man, who had been endowed with so many talents, be acquitted before God of the ill use he made of them! May that Jesus, whom he often attacked, have exalted his fins!"

Voltaire, speaking of his Critical Dictionary, says, "It is the first work of the kind in which a man may learn to think." He confesses, however, those articles which contain only a detail of minute facts, as unworthy either of Bayle, an intelligent reader, or polemic. "In placing him," adds this author, "among the writers who do honour to the age of Louis XIV, although a refugee in Holland, I only conform to the decree of the parliament of Toulouse; which, when it declared his will valid in France, notwithstanding the rigour of the laws, expressly said, that such a man could not be considered as a foreigner. "Without controversy, or a patron, or prejudice," says Gibbon in his "Miscellaneous Works," "Bayle claimed the liberty, and fulfilled by the labours of his pen." The inequality of his voluminous works is explained and excused by his alternately writing for himself, for the book sellers, and for polemic; and if a severe critic would reduce him to a single folio, that relic, like the books of the Sibyl, would become still more valuable. The ancient paradox of Plutarch, continues this writer, that atheism is less pernicious than superstition, acquires a tenfold vigour when it is adorned with the colours of his wit, and pointed with the acuteness of his logic. His "Critical Dictionary" is a varied, poetical of facts and opinions, and he balances the false religions in his sceptical scale, till the opposite quantities, adopting the language of algebra, annihilate each other. The wonderful power which he so boldly exercised of assembling doubts and objections, had tempted him jealously to assume the title of the "Historian's Zephyr, the cloud-compelling Jove; and in a conversation with the
Bay

Bayle, in *Fortification*, the space outside the ditch of our ancient fortresses, commonly surrounded by strong palisades, and sometimes by a low embattled wall.

Bayley, Lewis, in *Biography*, an English bishop in the reign of James II., was born at Carmarthen, in South Wales, and educated at Oxford. Being an eminent preacher, he was appointed one of the king's chaplains, and promoted to the see of Bangor in 1616. In 1621 he was committed to the Fleet, probably on account of his concern in Prince Henry's match with the Infanta of Spain. He died in 1632, and was buried in the church of Bangor. This prelate was the author of a famous piece called "The Practice of Piety," which has been so popular that the edition of 1754 was the 59th. It was translated into Welsh and into French in 1753; and a complaint was alleged against it, that the common people regarded its authority as equal to that of the Bible. *Bib. Brit.*

Bayna, in *Geography*, a town of Hungary, in the Bodok district, the inhabitants of which are principally farmers and husbandsmen.

BAYNES, a town of France, in the department of the Calvados, and chief place of a canton, in the district of Bayeux, 31 leagues W.S.W. of Bayeux.

Baynet, a town and bay on the south side of the island of St. Domingo, 4½ leagues from Petit Guave, on the north side of the island, and about 8 leagues west of Jackmel. N. lat. 18° 17'.

Bayon, a town of France, in the department of the Meurthe, and chief place of a canton in the district of Luneville, seated on the Meurthe. The place contains 793 and the canton 7677 inhabitants, on a territory of 195 square miles, containing 25 communes. N. lat. 48° 30'. E. long. 14° 42'.

Bayona, a sea-port town of Spain in Gallicia, situated in a small gulf, near the mouth of the Minho, with a convenient harbour. The coast near it abounds with excellent fish; and the land, watered by many springs, is fertile. N. lat. 42° 15'. W. long. 9° 30'.

Bayona Bay and Islands, lie on the south part of the great bay of Vigo, and to the east of Cape Fisticho, on the west coast of Spain, in the Atlantic Ocean. The bay forms the harbour of the town of Bayona. The two islands are situated a little to the west of north from the town. They were anciently called "Inhuke Deorum," or the isles of the Gods. A large rock, with many small ones about it, lies at the foot east of Bayona islands.

Bayonet, in the *Military Art*, signifies a short broad dagger, used by all modern armies, since the sword has been laid aside, as a necessary appendage to the infantry. The origin of the term is not correctly known, but is most probably derived from having been first manufactured at the city of Bayon, or originally invented by an engineer of that place.

Bayonets were formerly made with a round handle, adapted to the bore of a firelock, so as to be fixed there after the folder had discharged his piece. They are now constructed with iron handles and rings which go over the muzzle of the firelock, and are secured fast; thus enabling the folder to fire and load with his bayonet fixed, and ready to ac, if necessary, against horse. This is particularly service to dragoons and fusiliers, after they have expended all their powder and ball.

The use of the bayonet fastened on the muzzle of the firelock was a great improvement, first introduced by the French, and to which, according to the chevalier de Polard, (Comm. fur. Poliv. vol. I. p. 135. edit Paris, 1772), they owed a great measure of their victories obtained in the war of 1689. To its neglect in the next war, the same writer attributes most of the losses they sustained. It is to marshal Catlin, the French are indebted for the great superiority they
The population of the place is said to amount to 13,199 persons. N. lat. 43° 29' 21". W. long. 1° 30' 6".

BAYS, in Commerce, a kind of coarse, open, woolen stuff, having a long knap; sometimes frizzed on one side, and sometimes not frizzed, according to the uses for which it is intended.

This stuff is without waist, being wrought on a loom with two tredles like flannel. It is chiefly manufactured about Colchester, and Backing in Essex; and in Flanders, about Lille and Tournay, &c.

This manufacture was first brought into England, together with that of fays, serges, &c. by the Flemings, who fled hither from the persecution of the duke of Alva, about the fifth year of the reign of queen Elizabeth, and had afterwards peculiar privileges granted them by the 12 Car. II., in 1660. The exportation of bays was formerly much more considerable than it is now, as the French manufacturers have learned to imitate them, and have set up manufactures of their own at Nimes, Montpellier, &c. However, a considerable quantity of bays is still exported to Spain, Portugal, and Italy. Their chief use is for the religious, and for linings in the army; the looking-glass makers also use them behind their glasses, to preserve the tin or quicksilver; and the cafe-makers to line their cafes.

The breadth of bays is commonly a yard and half, yard and three quarters, or two yards; by forty-two, or forty-eight, in length: those of a yard and three quarters are most proper for the Spanish trade.

Bays, in Geography, a town of France, in the department of the Mayenne, and chief place of a canton, in the district of Mayenne, 3½ leagues E.S.E. of Mayenne. The place contains 2,100, and the canton 14,470 inhabitants; in an extent of 1291 kilometres and 9 communes.

BAYONNE, or BAZAR, in Commerce, fine open cotton, which comes from Jerusalem, whence it is called Jerusalem cotton.

Bazars, in Geography, a town of Germany, in the duchy of Carniola, 7 miles S.S.W. of Feldsch, Baza, or Baza, a town of Spain, in the province of Granada, between Guadix and Huecar, supposed to be the ancient Bactus. N. lat. 37° 31'. W. long. 2° 31'.

BAZADOIS, a district of the province of Guyenne, before the revolution, situated between Agenois, Condominois, and Guyenne. The soil is sandy and unproductive. The capital is Bazas.

The word bazars means of Arabic, or rather of Persian and Turkish origin, where it denotes fales, or exchange of goods. Some of the eastern bazars are open, like the market-places in Europe, and serve for the same uses, more particularly for the sale of the more bulky and less valuable commodities. Others are covered with lofty ceilings, and are sometimes pierced to give light; and it is in these the jewellers, goldsmiths, and other dealers in the richer wares, have their shops. The bazar or market of Ilfoun is one of the finest places in all Perif, and even surpasses all the exchanges in Europe; yet, notwithstanding its magnificence, it is exceeded by the bazar of Tauris, which is the largest that is known, having several times held thirty thousand and more ranged in order of battle.

At Constantinople there are the old and the new bazar, which are large, square buildings, covered with domes, and embellished with arches and pilasters; the former chiefly for arms, harness, and the like; the latter for goldsmiths, jewellers, furriers, and all sorts of manufacturers. For an account of the bazars of Alkppo, see ALKPP.

BAZAR, or BAZAAR, a town of Hindostan, 20 miles N.E. of...
BAZ

of Attock, seated near the Indus, Nibak or Sinde river. N. lat. 33° 45'. E. long. 71° 18'.

BAZARUTO, or Bosaca island, lie off the south-east coast of Africa, in the Indian ocean, opposite to Asoeca bay. S. lat. 21° 55'. E. long. 32° 30'.

BAZAAS, a city of France, and principal place of a district, in the department of the Gironde, before the revolution the capital of Bazadois, and see of a bishop. It is seated on a rock. The place contains 4,215, and the canton 9,862 inhabitants, in 13 communes and a territorial extent of 210 kilometers. N. lat. 44° 26'. W. long. o° 30'.

BAZEELE, 59., a town of France, in the department of the Lot and Garonne, in the district of Marmande, 3 leagues N. W. of Marmande.

BAZENDGES, in Natural History, the name of a substance used by the Turks, and other eastern nations, in their scarlet dyeing: they mix it for this purpose with cochineal and tartar, the proportions being two ounces of the bazzengdes to one ounce of cochineal.

The bazzengdes seem to be no other than the horns of the terepine tree in the eastern parts of the world; and it is not only in Syria that they are found, but China also affords them. Many things of this kind were sent over to M. Geoffroy at Paris from China, as the substances used in the scarlet dyeing of that country, and they proved wholly the same with the Syrian and Turkish bazengdes, and with the common terepine horns. The lentilk or mastic tree is also frequently found producing many horns, of a like kind with these, and of the same origin, all being owing to the puccenta, which make their way into the leaves, and breed their young there. Reaumur's Hist. of Insects, vol. vi. p. 57.

BAZIELE, in Geography, a town of France, in the department of the upper Garonne, and chief place of a canton, in the district of Villefranche, 4 leagues S.E. of Toulouse.

BAZIN, NICOLAS, in Biography, a French physician and corresponding Member of the academy of Sciences at Paris, graduated at Strasburg, where he afterwards resided, and acquired considerable reputation as a practitioner in medicine, though his attention was principally turned to the study of natural history, which he enriched with the following valuable productions. "Observations fur les plantes, et fur leur analogie avec les infestes," Strasburg, 1741, 8vo. He believed that plants required, and that the juices abdorbed by them for their nourishment were digested, or concocted in the root, prior to their distribution. "Histoire des Abeilles," 2 vols. 12mo. Paris, 1744. "Lettre au fujet des animaux, appelles polyopes," 1745, 12mo. He died in March 1754. Hall. Bib. Pot. Eloy. Dict. Hist.

BAZIRA, in Ancient Geography, now BIZIRE, a district of a territory adjoining to the country of the Assaceni, or Assacen, corresponding to the present Sewad or Sowhad, between the rivers Bzore and Perjekoreh in Hindoostan. When Alexander had taken Mallaga, the capital of the Assacen, by assult, he humoured Bazira, the capital of the next adjacent territory, and the modern district of Bzire presents itself in a position that answers most unequivalently to that of Bazira; and the similarity of their names is no less striking. See Bzore.

BAZIRGON, a town of Peria, is the province of Laidian, 57 miles east of Las.

BAZIUM, a promontory of Egypt, on the western coast of the Red Sea. Ptolemy.

BAZOCHE, or BAOCHE, in Laos, formerly a royal kind of jurisdiction exercised among the clerks of the palais, or courts of justice at Paris. It was administered in the name and by the authority of the king of Bazoches, roi de la Bazoches, by virtue of an ancient grant of the kings of France; the elder among the clerks were the officers; and he who presided was the chancellor. This court only took cognizance of causes among the clerks, or between clerks and artificers for goods bought, or work done. The freedom they exercised with regard to private characters in their Inquisition and remonstrances, occasioned several arrests to restrain their power, and prohibit their holding pleas without leave.

A collection of statutes, ordonnances, regulations, monumens, and prerogatives of the kingdom of Bazoches, was published at Paris in 1654, 8vo.

BAZOCHE, LA, in Geography, a town of France, in the department of the Eure and Loire, and chief place of a canton, in the district of Nogent le Rotrou, 5 miles S.E. of Author.

BAZOCHEs, LE-GERVAND, a town of France, chief place of a canton, in the department of the Loiret; the place contains 1,026, and the canton 4,289 inhabitants, in 46 communes, and a territory including 305 kilometers.

BAZOCHEs fur-Hotiers, a town of France, in the department of the Ome, and chief place of a canton, in the district of Mortagne, 9 miles N.W. of Argentan. The place contains 1,349 and the canton 7,254 inhabitants, in 44 communes, and on a territory of 122 kilometers.— Alto, a town of France, in the department of the Aisne, and chief place of a canton, in the district of Soissons, 4 leagues E. of Soiffons.

BAZOGE, LA, a town of France, in the department of the Sarthe, and chief place of a canton, in the district of le Mans, six miles N. of le Mans.

BAZOUGERs, a town of France, in the department of the Mayenne, and chief place of a canton, in the district of Laval, 24 leagues S.E. of Laval.

BAZOGUES LA PERROUSE, a town of France, in the department of the Ille and Vilaine, and chief place of a canton, in the district of Dol, 3 leagues S.E. of Dol.

EDELLUM, BODLIO, an aromatic gum, brought from the Levant, of some use, both as a medicine and a perfume.

The word is supposed to have been formed of the Hebrew בגדל, bazzoldahl, which the English translators render by the appellation bizzellum. It is also written bizzellum, bedellio, petellum, petallium, megalium, and telium.

There is much uncertainty concerning both the plant and the place of its production, which is supposed to be in Africa. We find mention of the name both among the ancient naturalists, and in Scripture; but it is doubtful whether any of these be the same with the modern kind. As for the Scripture bizzellum, we know very little of it. Mofes describes manna as of the colour of bizzellum; and Josephus explains the passage, by saying it is the gum of a tree resembling the olive tree; and that the manna wherewith the Jews were fed in the desert resembled this drug.—But Scaliger and others yet abide this explication, and own they do not know what the bizzellum mentioned in Scripture is.

The bizzellum of the moderns is a gum-refin in irregular brittle masses, of a deep brown when broken, interlacered with more transparent parts; and mixed with small twigs and other accidental impurities. Its external appearance a good deal resembles myrrh. The smell of this gum-refin is somewhat fragrant, and its taste somewhat bitter and pungent. It grows soft and tenacious when chewed. It burns with ease, giving a fragrant smoke and a crackling noise. It is partly fisible in alcohol, and partly in water, or completely (the impurities excepted) in diluted spirit. By Neumans's experiments only about one-sixth is pure resin. The watery solution is tea-green, the spirtuous red. Diluted with water it impregnates the liquid with its flavour, but it does not yield any feasible quantity of effluent oil, when only a moderate quantity is used.

*Edellium*
BEA

Bullaun was formerly employed in a stimulating remedy, chiefly for external application, and is still retained in some of the warm plasters of the Paris dispensatories. It is entirely diffused here, and seldom to be seen in the shops. It resembles myrrh in its properties, but less in degree, and is very degreelly neglected. Murray, Lewis, “La Grande Enciclopaedia de Pharm.”

BEACH, in Geography, a branch of Salt river, which rises in Nelson county, Kentucky, in America. On this river is famed a clay, which it is thought might be manufactured into good porcelain.

BEACH-HEAD, a bold promontory which projects into the English channel on the Sarket coast, between Hastings and Shoreham. This commanding headland consists of alternate strata of chalk and clay; though the latter is only seen in thin layers or veins. “It is embellished,” says Camden, “the highest cliff of all the fourth coast of England,” and “on its fourth side is a large semicircular indentation.” It is divided into seven cliffs, and called by Frenchmen. The coast round this head is very dangerous in foggy weathers, particularly when the wind is in from S.S.E. or S.W. From this promontory to Arundel, the country along the coast rises into high hills, which are known by the name of South-downs, and celebrated for their sheep walks. Beach-head is memorable for the defeat of the English and Dutch fleets near it by a superior force of the French, June 30th, 1692. N. lat. 3° 44' 30". E. long. 5° 19' 46". See EASTBOURNE.

BEACH-HEAD, lies also on the eastern coast of South America, in Patagonia, about S.S.W. from Port Julian, and N.N.E. from Cape Faire Weather. S. lat. 50° 21'. W. long. 6° 42'.

BEACON, a signal for the better securing of the kingdom against foreign invasion.

Different methods have been taken in different countries, both anciently and of later ages, to convey the notice of any impending danger to distant places with the greatest expedition. But no kind of signals has more generally prevailed than that of fires in the night. That was practised among the Jews we learn from the sacred writers. Hence the prophet Hiah, in allusion to that custom, threatens them that they should be left as “a Beacon upon the top of a mountain, and as an ensign on a hill.” (chap. xxx. 17.) And in the like manner Jeremiah alarmeth them by laying, “Set up a fire of sign in Beth-lacharon, for I will appear thereunto out of the north, and great destruction!” (chap. vi. 1.) And as to other countries, Aretch de Mundo, informs us, that such signals were to be depended on towards all the territories of the land of Israel, that in the space of twenty-four hours he could receive advice at Saba and Edomata, his two capital cities, of any conveyance or disturbance that might happen in the most distant parts of his dominions. But to the Scots, as Theyle relates, “the use of torches for fires, is by a different management, to give notice of the approach of an enemy or the arrival of a friend in their territories. For as the school of delay, in the former case, of the English were from time to time, and in the latter they were kept handy,” (b. ii. c. 16.) Among the Greeks, they were called Phosphoroi, and their use is particularly described in the Agamemnon of Aischylus. The like custom of using torches and fires appears also among the Romans, as appears from Cicero, where, speaking of the miraculous doct of Virro, who governed of Sicily, he says, “Non solo longe invenisse, sed primum ad oculos fecisse ignem e specula fabulosa; sed haec ex ipsius piscatorum nomine, et calamitatum accipitrum et periculorum insigni auxilio; (lib. v. in Verrem, § 91.) Wherefore sigg’s of this fort are called by Pliny “ignes nauticorum” Nat. Hist. lib. xi, § 73.) which he distinguishes from the Pharos, or light-houses, that were placed upon the coasts for the direction of ships; the latter of which were constant, but the former only occasional.

Established signals were repeated, says Charnock, in his “Moral Architecture,” by means of beacons or light-houses erected in proper positions, from mountain to mountain, through a chain of stations, which were laid to have commanded an extent of more than three miles; so that even the inhabitants of Constantinople were capable of being informed, within the short space of a few hours, of motions that might be attempted by their Saracen enemies in Darius.

In our own country, the name of beacon is derived from the Anglo-Saxon lecman, to shew by flag or beacon. It was generally placed upon a high ground, and sometimes on a tumulus. From lord Coke we learn (Fourth B. R. c. xxx. p. 184.) that before the reign of Edward the third, beacons were but flashes of wood left up on high places, and at the coming of the crown, the signal was deferred; but in his reign pitch boxes were set up instead of these. In time of danger a watch was kept at them, and horsemen called hobbles were stationed by most of them to give notice of an enemy’s approach.

Beacons are also marks and signs erected on the coasts, for the guidance and preservation of mariners at sea by night as well as by day. The erection of beacons, light-houses, and sea-marks, both for alarming the country in case of the approach of an enemy, and for the direction and safety of ships, is a branch of the royal prerogative. For this purpose the king hath the exclusive power, by commission under his great seal, to cause them to be erected in fit and convenient places, as well as upon the lands of the subject as upon the demesnes of the crown; which power is usually veiled by letters patent in the office of lord high admiral.

Nevertheless it must be understood that the power of erecting beacons was occasionally given to individuals, and limited by grants from the crown, whence, or for some achievements performed in times of danger, the beacon is worn as a mark in the arms of several families, as Belknap, Butler, Mountford, Soley, and Shelly of Mitchel Grove, one or two of whom obtained especial grants which empowered them to erect and maintain beacons at their own expense.

The care of these, when erected by the crown, was committed to one or more of the adjacent hundred; and the money due or payable for their maintenance, called torrangingum, was levied by the Sheriff of the county upon each hundred. (Archaeologia, vol. i. part 1. Hutchins, Hist. of Dorset, vol. i. p. lix. Camul. Brit. Edit. 1609. p. 195.)

By Statute 8 Eliz. c. 13, the corporation of the “Trinity House” are empowered to set up any beacons or sea-marks wherever they shall think them necessary; and if the owner of the land or any other person shall defray them, or shall take down any he may, they, or other known beacon, he shall forfeit £ 1, or in case of inability to pay it, he shall forfeit the same.

BEACONAGE, money paid towards the maintenance of a beacon. A fact for a lease of a beacon standing on a rock in the sea may be brought in the court of admiralty, the admirals having an original jurisdiction over beacons. 1 Salk. 186.

BEACON HILL, in Geography. See HARWICH.

BEACONSFIELD, a small market town of Buckinghamshire, in England, at the distance of 34 miles N.W. from London. The town is built on a high ground, whence the inhabitants have a clear view of a beacon formerly occupying the spot. The habitation no
which it stands is chiefly gravel, and the houses are built with flints or brick, there being no stone quarries in this part of the county. Beaconfield has little claim to popular attention, there being no particular historical events or antiquities attached to it. Here are a small weekly market on Wednesdays, and two annual fairs. Seated on the great public road between London and Oxford, it derives some advantages from travel; but it has been particularly noted in the literary annals of this country, by the continuous residences of Edmund Waller the poet, and Edmund Burke the politician, both of whom resided estates near Beaconfield, and the memories of both are commemorated by inscriptions at the parish church. See Waller and Burke.

About three miles east of Beaconfield is Bushford, a seat of the duke of Portland. This ducal residence was formerly in the possession of the Bushford family, but reverting to the crown, was given by king William III. to William Bentinck, who had long been the constant attendant and faithful servant of that monarch, and who was created by him earl of Portland in 1689. From him it descended to the present nobleman, who has made considerable additions and improvements to the house and grounds. The former is a large irregular brick building, seated on a high knoll, in the centre of a fine park which abounds with venerable trees, and is diversified with that variety of surface, which constitutes the foundation of the picturesque. This park contains about 800 acres, and in the eastern part of it is a large circular entrenchment enclosing an area of twenty acres. See Beauties of England and Wales, vol. i. 1801.

**Bead**, Baguette, Fr. in Architecture, a little round moulding, the diminutive, or rather the vulgar name of a triglaf. This moulding is generally found in the cornices of antique buildings, where it is uniformly carved with ornaments, sometimes in the shape of a string of beads, sometimes a twisted ribbon or a rope. See Plate XXI. of Architecture. Plain beads are very much used in modern joiners' and plasterers' work, as the mouldings of doors, shutters, skirtings, impolts, and cornices.

Bead, in AFFAYING, the small lump or mass of pure metal separated from the Jesse, and seen distinct and pure in the middle of the coppers while in the fire.

Thus, in separating fire from its ore by means of lead, the silver remains in form of a bead, when the lead, that had before affiled in the operation, is reduced to Jesse. In this process, the bead of silver must be taken out of the coppers as soon as it is seen pure and flat, and growing cold, it should be conglutinated to the coppers or lathage. This bead, when rightly made, is always porous underneath. Cranner.

Beads are more particularly used among us for a fort of glass necklace, made in imitation of the colour and figure of pearl.

Beads are also used in speaking of those glass globules vended to the savages on the coast of Africa, thus denominated, because they are stringed together for the convenience of traffic.

The common black glass of which beads are made for necklaces, &c., is coloured with manganene only; one part of manganene is sufficient to give a black colour to near twenty of glass. Lewis's Comm. Phil. p. 422. See Artificial Pearls.

Beads, in a religious sense. See Chaplet.

Bead-Roll, among the Romish priests, a list or catalogue of such persons, for the red of whose souls they are obliged to rehearse a certain number of prayers, &c., which are told by means of their beads.

Bead-Makers, called by the French paternostriers, are those employed in the making, stringing, and selling of beads. At Paris there are three companies of paternostriers, or bead-makers; one who make them of glass or crystal; another in wood and horn; and a third in amber, coral, jet, &c. Bead Proof, or Double Proof, terms used by our distillers, to express that fort of proof of the standard strength of spirituous liquors, which consists in their havings, when shaken in a phial, or poured from on high into a glass, a crown of bubbles, which stand on the surface some time after. This is esteemed a proof that the spirit consists of equal parts of rectified spirits and phegum.

This is a fallacious rule as to the degree of strength in the liquor; because any thing that will increase the tenacity of the spirit, will give it this proof though it be under the due strength. Our malt distillers spoil the greater part of their goods, by leaving too much of the flinking oil of the malt in their spirit, in order to give it this proof, when somewhat under the standard strength. But this is a great deceit on the purchasers of malt spirits, as they have them by this means not only weaker than they ought to be, but flinking with an oil, which they are not easily cleared of afterwards.

On the other hand, the dealers in brandy, who usually have the art of suffusing it to a great nicety, are in the right when they buy it by the strongest bead proof, as the grand mark of the bell; for being a proof of the brandy containing a large quantity of its oil, it is, at the same time, a token of its high flavour, and of its being capable of bearing a very large addition of the common spirits of our own produce, without betraying their flavour or losing its own.

We value the French brandy for the quantity of this essential oil of the grape which it contains, and with good reason; as it is with us principally used for drinking as an agreeably flavoured cordial: but the French themselves, when they want it for any curious purposes, are as careful in the rectification of it, and take as much pains to clear it from this oil, as we do to free our malt spirit from that nauseous and fatal oil, which it originally contains.

No judgment can be formed of brandies by the bead proof as to their mixed or adulterated, or their pure flate, farther than that they are likely to be most pure when they have the greatest proportion of this oil, in regard to mixtures of other spirits. There are many occasions where we want spirit, merely as spirit, and where any oil, whether sweet or flinking, must be equally improper. Shaw's Eff. on Distillery.

**Bead Tree**, in Botany. See Melia.

**Beadle**, or Bedell, Bedelius, signifiques a messenger or appraitor of a court, who cites men to appear and answer in the court to what is alleged against them.

Beadle is also used for an officer in universities, whose place it is to walk before the masters at all public proceedings, &c., with a mace. The office of church and parish beadles is well known.

Spelman, Volins, and Sommer, derive beadle from the Saxon beadl, a publicicer; in which sense bishops, in some ancient Saxon manuscripts, are called beadles of God, Dei beadell. The translator of the Saxon New Testament renders exalter by beadle; and the word is used in the same sense in the laws of Scotland.

Beadle of the Forth is an officer, that warns all the courts of the forefathers, and executes process, makes all proclamations, &c. 4 Inft. 315.

**BEAGLE**, in Zoology. See Canis Familiaris, and Dog.

Beagles are of divers kinds as the southern beagle, something less and shorter, but thicker than the deep-mouthed hound; the fleet northern, or cat beagle, small and of a finer shape than the southern, and a harder runner. From the two,
two, by crossing the Arian, is bred a third sort held preferable to either.

To these may be added a still smaller sort of beagles fierce and like dogs, which make a pretty diversion in hunting the otter, or even small hares in dry weather; but otherwise unserviceable, by reason of their size. Beagles, both rough and smooth, have their admirers among sportmen; their tongues are musical, and they go farther than the southern hounds; they run so close to the ground, as to enjoy the scent better than taller dogs, especially when the atmosphere is low. In an inclosed country they are said to do best as they are good at trailing or default, and for hedge-rows; but they require a clever huntsman, for out of eighty couple in the field, during a winter's sport, scarcely forty couple are to be depended upon. Of the two sorts, the wire-haired, as having good shoulders and being well fletched, are preferred. Smooth-haired beagles are commonly deep hung, thick-lipped, with large nostrils, but often too fat and had quivered, as to be shouder-broke, and clipped the first season they hunt; among them are frequently seen crooked legs, like the Batturns, and after two hours running many of them are disabled. Their form and three sufficiently denote them not designed for hard exercise. Daniel's Rural Sports, vol. i. p. 373.

BEAK, Raftreum, in Ornithology, the bill of a bird; from the form and structure of which, Linnaeus divides this whole family or general class of animals into six orders. See Bird and Ornithology.

BEAK, in Architecture, a little fillet left on the edge of a timber, which forms a canal, and makes a kind of pendant chin, answering to what Vitruvius calls the canemum.

BEAK, or Beak-Head of a Ship, is that part without the ship behind the forecastle, which is fastened to the stem, and is supported by the main knee: this is usually carved and painted, and, besides its use, makes the becoming part, or grace of a ship.

The beak was anciently made of wood, but fortified with brafs, and faftened to the prow, serving to annoy the enemies' vessels. Its invention is attributed to Pisius, an Italian. The first beaks were made long and high; but afterwards a Corinthian, named Arius, contrived to make them short and strong, and placed it low as to pierce the enemies' vessels under water. By the help of these, great havoc was made by the Saracens in the Athenian fleet. Petr. Arched. lib. iii. c. 17.

BEAK was also used for one of the ancient battle, or forms of ranging an army for battle, particularly used by the Macedonians.

BEAK is also applied to the slender crooked prominences of divers bodies, bearing some analogy or resemblance to the beaks of birds.

In this sense, we meet with beaks of shoes, rita caelestis, for long pointed toes, in use of old. Du-Cange.

Among Farriers a beak denotes a little horfe-shoe, turned up, and faftened in upon the forepart of the hoof.

It is used to keep the shoes faft, and not liable to be struck off by the horse, when by reason of any itch, or being much disturbed by the flies in hot weather, he dampens his feet violently on the ground.

BEAKED, Cequé, in Heraldry, is used when the beak or bill of a fowl is of a different tincture from the body.

In this cafe, they say leaked and membred of such a tincture.

BEAKING, in Cock-Fighting, expresses the fighting of these birds with their bills, or holding with the bill, and striking with the beaks.

BEALE, in Geography, a river of Ireland, which runs into the Shannon near Athlone, in the county of Limerick.

BEALE, Mary, in Biography, a female portrait painter in the reign of King Charles II., was the daughter of Mr. Craddock, minister of Walton upon Thames, and was born in Suffolk in 1672. Although she was not instructed in the rudiments of painting by her Peter Lely, as some have supposed, she diligently copied the works of that great master, as well as those of Vandyke. She painted oils, water-colours and crayons; and by copying some pictures of Italian masters, improved her taste and pencil, and acquired much of their air and style, which appear in her portraits. She was little inferior to any of her contemporaries with respect to colouring, strength, force, or life; and she worked with a great body of colours. Her performances were held in high estimation by Sir Peter Lely. Amiable in her conduct, and insidious in her profession, she was very much encouraged and employed, both by the clergy and by several persons of rank, whose portraits she painted. It appears, that in one year she received for pictures 450l., and that she and her husband devoted about two hundred in the pound of their income to charitable purposes. The MSS. of Mr. Oldys, Mrs. Beale is celebrated for her poetry as well as her painting. She died Dec. 28, 1697; and left two fons, Charles and Bartholomew, both of whom exercised the art of painting; but the latter relinquished painting, and studied physic under Dr. Sydenham, and practised at Coventry, where he and his father died. Walpole's Anecdotcs of Painting, vol. iii.

BEALNABRUCH, in Geography, the name of a river in the county of Galway, province of Connaught, Ireland, which rives in Joyces country near the Killeres, north of the mountain of Bannoclea or the twelve pins, and flows through a mountainous country into Lough Corrib, near the base of the stupendous Ben Levegh. The valley through which it runs is pretty well peopled. A great error is committed in Roque's and all the old maps, in representing this river as flowing into Roundstone bay, and affording a second outlet to Lough Corrib, instead of carrying it into a large supply of water. Dr. Beaumont's Map and Memoirs.

BEALS, URG, a small town of America, in Nelson county, Kentucky, on the eait bank of Rolling fork, containing twenty houses, and also a tobacco warehouse; 15 miles W.S. W. from Bardstown, and 590 from Philadelphia. N. lat 37 42. W. long 85 50.

BEALT, See Built.

BEAM, in Architecture, is any piece of timber of a rectangular section of equal depth and thickness throughout its length, applied in an horizontal position in various situations in a building, for the purpose of resisting some strain either in a longitudinal or transverse direction, such as to prevent the rafters of roofs from pulling out adjacent walls upon which they rest, or to sustain a superincumbent part of a wall instead of an arch. This word, however, is not much used technically, and only in combination with other words, which denote its position or use. When a beam is placed at the bottom of a pair of rafters it is called a "fice-beam," but when placed in a higher situation it is called a "collar-beam." When a beam is placed over piers of masonry or wooden posts to support a superincumbent wall, it is called a "breast-fummer," or "summer-beam." When a beam is placed across a floor to support the ends of joists and shorten their bearings, it is called a "girdle," or "girdling-beam." See Carpenter.

Some of the best authors have considered the force or strength of beams, and brought their reliance to a precise calculation; particularly M. Varignon and M. Parent. See Strength of Timber.

BEAM of a Plough, in Agriculture, a name given by our farmers...
fanners to the great timber of the plough, in which all the other parts of the plough-tail are fixed.

This is usually made of ash, and is straight, and eight feet long in the common plough: but in the four-centined plough, it is ten feet long, and its upper part arched. The head of this beam lies on the pillow of the plough, and is raised higher, or sunk lower, as that pillow is elevated or depressed by being flapped along the crow-flares. Near the middle, it has an iron collar, which receives the tow-chain from the box, and the bride-chain from the flake or gallows of the plough is fixed in it a little below the collar. Some inches below this, there is a hole, which lets through the collar; and below that there are two other small ones, through which the heads of the retches pass. These are the iron which supports the joint, and with it the flares. Further backward still is a larger perforation, through which the body of the joint passes and behind that, very near the extremity, is another hole through which the piece called the hinder-joint passes. See Plough.

Beams of a ship, are the large, main, cross timbers, studding from side to side, which hold the sides of a ship from falling together, and which also support the deck and orlop of the ship.

The main beam is that next the main mast: and from it they are reckoned by first, second, and third beam. The great beam of all is called the midship-beam.

There are usually twenty-four beams on the lower deck of a ship of 74 guns, and on the other decks additional ones in proportion, as the ship lengths above.

Bean, on the, in Sea Language, denotes any distance from the beam on a line with the beams, or at right angles with the keel. Any object that lies east or west, when the ship steers northward, is said to be on the larboard or starboard beam.

Bean, before the, signifies an arch of the horizon comprehended between the line of the beam, and that point of the compass which the item denotes. See ABBEY.

Bean, on the Weather, signifies on the weather side of the ship.

Bean, Camber. See CAMBER-BEAM.

Bean of an Anchor. See Anchor.

Bean of a balance, is that piece of iron or wood, somewhat bigger towards the middle than at the ends, where there are holes through which run the ropes or liftings which hold the fede: the beam is divided into two equal parts, by a needle placed over it perpendicularly: and the centre of motion must be placed a little above the centre of gravity, that the beam may rest exactly in an horizontal position.

See BALANCE.

Bean, or Roller, among Weavers, is a long and thick wooden cylinder placed lengthways on the back part of the loom of those who work with the shuttle. The threads of the warp, of linen or woollen cloth, lerges, on other woollen fluffs, are rolled upon the beam, and imroled as the work goes on. That cylinder on which the fluff is rolled as it is woven is also called the beam or roller, and is placed on the fore part of the loom.

Bean, in Heraldry, is used to express the main horn of a hart or buck.

Bean, among Hunters, denotes the main item of a deer's head; or that part which bears the antlers, royals, and tops; the little flakes which of are called circles.

Bean is also used for a fiery meteor in the flaps of a pillar; and for a ray of the sun.

Bean compasses. See Compasses.

Beam feathers, in Falconry, the longest feathers of a hawk's wing.

Beam filling, in Building, the filling up the vacant space between the rising plate and roof, with stones, or bricks, laid between the rafters on the rising plate, and plastered on with loam; this is frequent where the gurrets are not peraet, or plastered.

Bean tree. See CRATAGES Aria.

BEAMINSTER. See BEMINSTER.

BEAN, in Botany. See Vicia Fabia.

Bean, faba. The medicinal and dietetic qualities of beans are said to be nutritive, but flatulent: the pods yield a water held good against the gripes in children. Some have used the bean as a feecedicine in coffee; which in principle is much preferable, and which is contained in half the quantity of oil. Mr. Boyle has several experiments of beans treated potwatomically to throw the great plenty of air they afford, on which their flatulence depends. This air, which beans contain in a fixed state, is extracted during their digestion in the flomach, in greater quantity than can be again absorbed, and upon that account these, and other leguminous, have been at all times noted for occasioning flatulence, and sometimes colic pains. The expansion of beans in growing, Mr. Boyle also found so considerable that it would raise a plug dugged with above a hundred pounds weight. Boyle's Works abr. tom. i. p. 285. tom. ii. p. 615, &c.

Beans with proper management make one of the finest of all baits for fish. The method of preparing them for this purpose is this: take a new ceharn pot glazed on the inside, boil some beans in it, suppo a quarter of a peck: they must be boiled in river water, and should be previously steeped in some warm water for six or seven hours. When they are about half boiled, put in three or four ounces of honey, and two or three grains of salt: let them boil a little on, then take them off the fire, and use them in this manner: seek out a clean place, where there are no weeds, that the fish may see and take the beans at the bottom of the water. Throw in some beans at five or six in the morning, and in the evening for some days. This will draw them together, and they may be taken in a casting net in great numbers.

The ancients made use of beans in gathering the votes of the people, and for the election of magistrates. A white bean signified abolution, and a black one condemnation. Beans had a mysterious use in the limenath and parentalia; where the master of the family, after washing, was to throw a fort of black beans over his head, full repeating the words, "I redeem myself and family by these beans." Ovid gives a lively description of the whole ceremony in his Fasti, lib. v. ver. 435. Abstinence from beans is said to have been enjoined by Pythagoras, for which prohibition various reasons have been assigned. Some have supposed that it was intended to refrain his disciples from meddling in trials and verdicts which were decided by throwing beans into an urn. Others founding their opinion on the double sense of the word abstinens, which signified both a bean and the common telficle, explain it by abstin- ing from venery. Clemens Alexandrinus grounds the abstinence from beans on their tendency to render women barren; which property is confirmed by Theophrastus, who extends the same effect even to plants. Cicer suggests another reason; viz., that beans are very injurious to mental tranquility. Hence Amphiaras is said to have forborne the use of beans, before Pythagoras, that he might be better prepared for divining by dreams. The Egyptian priests held it a crime to look at beans, judging the very fight unclean. The flamens dialitus was not permitted even to mention the name. Lucian introduces the same philosopher in hell, saying, that to eat beans, and to eat our father's head, were equal crimes. After all, both the gennicenec of the precept, and the reality of any such abstinence among the ancien
cient Pythagoreans have been disputed. Some attribute the precept to Empedocles, a disciple of Pythagoras. Aristo-
leon, an ancient writer cited by A. Gellius, (l. iv. c. 11.) introduces Pythagoras saying, that he eat more frequently of beans than of any other pulse, on account of their gentle soothing the belly. Accordingly he is said to have permitted the use of them, because he believed them to be wholesome, but his disciples have forbidden them, because they thought them, as Hippocrates also did, productive of flatulence, and otherwise prejudicial to health. Thus, a pro-
hibition, which was at first a civil regulation, or salutary advice, assumed the authority of a sacred law.

**BEAN.**

*See Menyanthes.*

**Beans,** *See Zygophyllum.*

**Beans,** in *Navigation,* a small fishing vessel or pilot boat, used by the Portuguese, which rides with one mast, similar to the *Futan,* which fee.

**Beans,** in *Antiquity,* called by the Romans *lomentum,* was of some repute among the ancient ladies as a com-
menetic, wherewith to smooth the skin, and take away wrinkles.

**Beans,** in *Natural History,* the name given by authors to a very beautiful fly, of a very beautiful purple colour, frequently found on bean-flowers. It is produced from the worm or maggot called by authors *rada.*

**Beans,** in *Agriculture,* a sort of pulse, of which there are several kinds; but those best adapted to field culture are the small forts, such as the common *borst-beans,* and the *field-
beans.* The large forts, or garden-beans, as the *Windor,* *Long-pan,* and *Marsey,* have also been occasionally employed in the field, with success, in some of the southern districts.

Beans constantly prefer a strong moist soil, and on such, where proper culture is given, they mostly afford an abun-
dant produce. Tick-beans are foppoped by some farmers to be more productive than horse beans; but the latter grow taller in the field, and produce a more flagonate flate of the air, or moisture the land more, consequently are the most suitable for the stronger forts of soil.

The author of the *Agricultural Survey of Middlesex* ob-
erves, that beans are a crop which thrive well in almost any soil that is rather strong, such as medium-loams, sandy-loams, clayey-loam, and chalky-loams; on clay, marl, chalk, and fuch like cold subsoils. And the author of the *Synopsis of Husbandry* remarks that the proper time for planting beans is towards the latter end of January, or early in the following month; though this &ndash; may be continued to ad-


vantage till the middle or latter end of March, if the weather had prevented their being got in at an earlier season; but in general it is best to embrace the first opportunity of fowing them after Candlesmas, as they often uncertainly if the feaon be procrastinated beyond that time, especially if a dry summer should succeed. In purchasing beans for feed, care should be taken to choose such as are hard and bright, with-
out being wrinkled in their appearance.

Mr. Dandieon, in his view of the present state of hu-
bandry, observes, that the ordinary mode of preparing land for a crop of beans, is to give one ploughing only, which is generally performed in the spring, immediately before the seed is fown.

Beans are for the most part sown broad-cast, either on the
flubble, before ploughing, or on the new turned-up furrow. Sometimes beans are sown or planted in the bottom of every black or third furrow, and afterwards hoed and hand-hoed. In a few districts they are sown with a drill-machine, and at such distances in the rows as to have sufficient space, either for hand-hoeing, when that only is intended, or for horse and hound-hoeing, when it is purposed that both these operations should be performed. It will at once appear obvious, he thinks, that either of these last-mentioned methods is preferable to sowing the seeds broad-cast, as a better opportunity is not only afforded of clearing the ground properly, but a more abundant return, and a produce of superior quality

The spring feed time in general commences with the sow-
ings of beans. In the southern districts, they are sown in ordinary seams so early as the middle or towards the end of February; and in the northern parts of Scotland so late as the beginning of April. The month of March may, however, as has been observed, be considered as the general bean feed season.

The first of the above writers thinks, that on land which is inclined to mould the preparation for this crop should be as follows: Early in autumn lay on the manure, and imme-
diately plough the land into ridgelots of two feet six inches wide; in which flate let it lie until the seaon for planting, when the seed may be dibbaced in, one row of beans into the middle of each ridglet, at the distance of about three inches from bean to bean. They should be immediately covered; which may be done by children, with a garden rake or hoe, or, should the surface of the land be dry and crumbly, a horse and a broad harrow would do as well. In most places, he ob-

erves, it is advisable to set a boy with a rattle to frighten away the rooks until the beans have attained some growth. The distance between the rows will not prevent the crop from completely covering the ground, especially if the land was manured for them, as they will branch out sideways, three or four flout items from each root. They should be early planted, in order to their getting sufficient root-hold of the land, and procuring thade against the hot weather set in. It is also some security against the black dolphin, which is the greatest enemy the bean is ever attacked by. They require a soil that can seldom be worked without damage during the winter and spring; consequently it ought to be manured and gathered into one bout ridges in the autumn. The shape of these ridges keeps the land more dry through the winter than any other, and prevents excessive rains from washing away the manure, which had been previously folded by the plough into the centre of such ridges; in which flate it should lie, as has been already observed, until the seaon for fowing; when the land thus prepared will be so dry as to admit of dibbacing every fair day; which secures to the farmer the advantage of choosing his seanon. He dandies, he says, about ten acres in September 1793, and ploughed the land into ridges of two feet and a half wide, burying the dung in the middle of them. The land lay dry through the winter, and he dibbled one row of beans into the middle of each ridge during the first week of February 1794. Mr. my neighbours, says he, on a similar soil, who ploughed into flat ridges of about fifteen feet wide, could not get their feed in till March. The ensuing summer was uncommonly dry; my beans being of unusually wide apart, admitted the plough and hoe to work as freely between the rows; as a flimboon would allow. The plants tierked or branched till they completely covered the intervals, and the field appeared as completely cropped as though it had been sown broad-cast. When my neighbours' plants, says he, were beginning to pod, mine were half set. The whole were alike attacked by the black-fly, which reduced their crops to a bullock or two per acre, while I had twenty.

Mr. Young, however, remarks in the *Survey of Suffolk,* that it is there uncommon to give more than one earth for beans, and generally improper, as they have a whole firm fur-
row, and never thrive better than on a layer.

There are many different methods, Mr. Bannister says, of raising crops of beans. In some counties they sow this pulse by broad-cast, which is by no means an eligible way, since much
much of the feed will be left above ground, and a great part of that which is covered by the harrow will not be covered to a proper depth; and many other objections might, he thinks, be urged against this method of fowling beans at random, of which it is not one of the least, that such irregular fawn crops are in great danger of being injured by weeds, which cannot easily be extirpated when the beans are sown at random as when they are planted regularly in drills.

In some districts, as Middlesex, Surrey, &c. the method is, to plant this pulse in rows stricken out by a line, by which a great saving is made in the article of seed, a circumstance which is thought to compensate for the extraordinary charge of this mode of husbandry; and thus far it may be fairly acknowledged, that the method of planting beans by the dibble is greatly to be preferred to that of sowing the feed at random. The economy of this agricultural process he thus explains: the rows are marked out one foot apart; the rows are stretched across the lands, which are formed about six feet over, so that when one row is planted, the ficks to which the line is fastened are moved by a regular measurement to the distance required, and the same method pursued till the field is completed. The usual price for this work is 9d. per peck, and the allowance two bushels per acre. Great confidence must necessarily be reposed in the people who transact the business of planting beans by the dibble, who, if inclined to fraud, have it in their power to deceive their employers by throwing great part of the feed into the hedge, from which their daily profits are considerably enhanced, their own labour spared, and every discovery effectually precluded, till the appearance of the crop, when the frequent chafms in the rows will give sufficient indications of the fraud; and by this time perhaps the villainous authors of the mischief may have escaped all possibility of detection, by having conveyed themselves from the scene of their iniquity. Such is the method of planting beans by the dibble; but the neatest and most expeditious way of sowing this pulse, especially the field bean, is, he observes, that pursued by the Kentish farmers. The usual course in that county, is to plough up the oat or barley grattens, which are designed for beans, soon after the wheat is sown, in which condition the fallows are to lie till towards Candlemas, or later, as the state of the weather, or the farmer’s occasion may require, and then to strike out the furrows.

About eleven furrows to a row’s breadth is the usual width of setting out the rows, though some prefer a wider space, whilst others strike them still narrower; and this difference in the width of the rows is the cause why the farmers vary so effectually in respect to the quantity of seed to be sown on the same given space of ground; for, whilst some will content themselves with an allowance of two bushels per acre, others will throw a sack of beans upon the same compass of land. When the furrows are struck at the distance mentioned before, two bushels and a half of middle-sized tick-beans are sufficient to feed an acre, and on good land (for if the ground be not either rich in itself, or rendered fertile by art, it is of little consequence to attempt the cultivation of this crop,) a person, in his opinion, finds a much fairer chance for a crop when the beans are thinly planted, than when a more liberal quantity of seed is allowed; for, when beans stand so thick in the rows, they never pod so kindly as when the ilaks are less crowded; and although the crop of haulm may be more abundant, the increase will not be adequate to the large bulk of straw.

In Suffolk, according to Mr. Young, beans have been dibbled by some a row on every flag; by others, on every other flag. He has found it more advantageous to plant in clutters four or five beans in every hole; and eight or nine inches from hole to hole, which admits of much better hoeing than when more thickly set. Dibbling, says he, is the best and most effective method of cultivating beans. In the Synopsis of Husbandry it is further observed, that in Kent some people make use of a drill plough at bean feed time; but as thispulse, especially the larger ticks, are very unequal in size, they cannot be let out of the hopper with sufficient regularity; for by this inequality in size, many yards of ground in the length of a furrow will be left vacant from the casual obstruction of a large bean, and when this is removed, numbers of a smaller size crowd to the chafm, and shoot out of the hopper for a considerable space, till another large bean intervenes to obstruct the passage, and thus the crop makes a very unflighty appearance in the rows, and at the time of harvest is very unequal; the injury in large fields being not inconsiderable: for, in those parts of the furrows, where no beans had been sown, an increase cannot be expected; and those which are huddled together by a quart or more in a spot, will, from the thickness of their growth, in course come to little. Some farmers are so nice as to pick and pull their feed before it goes into the hopper, in order to render the beans more even, and prevent the injury above mentioned: but this is a very tedious practice, and after all, he believes, very seldom answers the expense. The best method of sowing this crop, according to this writer, is from an instrument called a box, which is held by a man who follows the tilting plough, and who, by shaking the box filled with beans, drops them with regularity in the furrow, keeping even pace with it; so that by two men, and two or three horses to the ploughing plough, a man to box, and a boy and two horses to harrow down the ground after the plough, three acres may be finished off in a day, and the whole conducted with regularity.

The writer of the Agricultural Survey of Middlesex thinks that beans should be manured for, and kept perfectly clean while growing, by ploughing, horse or hand-hoeing, and hand-weeding; and that where they are so managed, they are an excellent preparation for either wheat or oats. They have a tap root, and hence they are more likely to succeed after crops that have fibrous roots; though he never heard that they would not grow after any crop. They are generally sown after wheat, barley, or oats; and ought, as has been already observed, to be planted on ridges, especially on wet and thin-burnt soils.

In the Synopsis of Husbandry it is recommended as a good method to roll and harrow beans in the latter end of March. By the roll, says this writer, the clods are broken so as to afford fresh nourishment to the roots; and the furrows following this operation pulverize and loosen the surface, which had been flattened and baked down by the rains in the preceding month, by which the beans are considerably assisted in the future progress of their growth. Soon after this the crop should be edge-hoed, and afterwards barked; which method of barking is a piece of husbandry peculiar to the county of Kent, and in every respect claims the preference to that of hoeing the whole space between the rows; not only because the barking is performed at an inferior expense, but it is likewise more efficacious, as well for extirpating the weeds that may have sprung up between the rows, as in furthering the advance of the beans in growth, by loosening the soil, and conveying fresh earth to the flanks. This operation of barking may be continued at the interval of three weeks or a month, from the beginning of May till the crop becomes in bloom. When it is proposed to earth up the beans, this may be effected with great facility by fixing a small block of wood on the break of the brake; the manner of doing which is familiar to every Kentish ploughman; and according to the diameter of this block, the earth may be throwa
thrown to different heights on the bean stalks, as they advance in growth.

In dry fanners when early winds prevail, beans are very apt to be driven with the dolphin fly, an insect which in a very short space of time will destroy the produce of a whole field. In this case it has been found very beneficial to take off the tops with a scythe, as the dolphin generally effects its first lodging in the upper part of the stalk. Where this gulf is sown broadcast, there remains no other way of clearing the field, than by cutting up the weeds with a hook, or by turning in a flock of sheep in May, when the ground is very foul, as this animal will devour the weeds, and leave the beans untouched. From this very partial method of weeding, it may fairly be concluded, that in a few acres, and on light lands, the gatron will be abundantly stocked with weeds at harvest, and the ground be totally unfit for sowing with wheat; and indeed, the practice of sowing beans where no attempt is made in those countries where this method of sowing beans at random prevails; and here, therefore, the beans and pea grains generally come in course the next year for a fallow. This is a practice that cannot be recommended.

It is remarked in the Survey of Middlesex, that beans are seldom ripe enough to cut till the latter end of August, and the proper time is when the Eo is turning black, about ten days before they would begin to open at the ends. Though in some parts of the field the kids may not be to black as in others, this should not prevent their being cut; for they will ripen and harden after that is done, by letting the sheaves upright, and leaving them in the field for a week or ten days. If they are cut long before they are ripe, they will shrunken and shrivel; and if too ripe, they will feed considerably; though there is much less danger in reaping them too early, than in letting them fland too long. Tho'se that are over-ripe should be cut with the dew on them, and carried to the barn in the same state; the green parts of the crop being cut in the middle of the day. When the intention is to sow wheat or rye after beans, they ought to be set up so as to occupy as little space as possible, that the vacant ground may be immediately prepared for the next crop. The writer of the Synopsis of Husbandry affords, that after a growing fummer, and on land which is in good heart, there will be many green pods when the crop is upon the whole fit for the hock; for the stalks having run to a great length, and being very replete with moisture, the upper part of the beans, pods, and stalks, will appear to be in a growing state long after the pods on the lower part of the stalk are fully ripened. To wait the ripening of these upper pods would be very ill-judged, as by this delay the great part of the crop would be lost, from the shedding of these which were already come to maturity. The best method, therefore, is to cut the beans when the major part have ripened, and by allowing the flocks to remain in the field, the upper part of the stalks will be sufficiently shaded, to prevent any ill effects from their humidity, when laid in the barn or soak; nor will the beans from those maripted pods be of any injury to the fample. As harrowed time, the same author informs us, that in Kent thole beans which were sown broadcast are mown with a scythe, and chased loose into the barn; a practice which is fraught with many inconveniences; but that in Middlesex, when the beans are planted in rows with a dibble, as before mentioned, the intervals are carefully cleansed during their growth by means of a hoe; and to this purpose the farmers are under the necessity of employing a number of hands; the Kentish method of cleaning the intervals by the horse not having yet been introduced into that county; since the whole ground between the rows must be flat-hoed. At harvest, the falks are cut with a hook, brand into sheaves, and fill up four together; and as a substiute for flings, it is usual to sow the headlands with peas, the haulm of which answers the purpose of bands to tie up the sheaves.

The Kentish mode of husbandry is greatly to be preferred, he thinks, to that of the Middlesex farmers, as is evident from the recommendation of the comparative disadvantages which attend a crop raised and managed according to the latter method, with the superior benefits of the former. At feed-time the planting by a dibber is infinitely more tedious and expensive than that of dropping the seed into the furrow after the whirling plough; and in the course of husbandry required to cleanse the intervals, the several flat-hoehes cause a far heavier charge than that which attends the breaking and edge-hoehing; and after all, the ground is not so well prepared for a wheat seed at Michaelmas, a method of husbandry generally pursued by the Middlesex farmers. One reason may be assigned, he says, why the Kentish husbandry has not yet been adopted by the Middlesex farmers; and this is from the nature of the land in that county, which in many parts is a deep heavy clay, so that these adhesive foils the sowing-plough is generally used, and the ground divided into portions, or (as they are termed) bands, to guard against the contingency of a wet season. But here, says he, this foil might be worked with a turn-roller-fout plough, and by proper drain be secured from the ill effects of a moist time; and the field being thus laid on a level, the rows might easily be struck out, and the subfrequent brakings he executed to advantage during the fummer, as usual with the Kentish farmers. It is added, that in those parts of Kent where the ground is very flat and husbandry is pursued, the farmers are particularly attentive to the several operations of hoeing and breaking the ground during the growth of the beans; for, as the land in that county is of a nature to require no prelile to the intervention of a summer fallow, they spare no pains in the cultivation of their bean and pea grounds, in order to render it as clean and well pulverized as possible by means of the hoe and break, so that this latter instrument is scarcely ever out of the field, from the beginning of May till the time when the beans are advanced to that height, as to obstruct the working of it; by which the ground becomes so intimately divided, that every particle of foil in the interspace is exposed to the beneficial influence of the sun and air, and at harvest scarcely a weed is perceptible throughout the crop. In order to destroy what few weeds may remain in the rows, and to give that part of the ground its due share of pulverization, and to cleanse it from the bean haulm, a plough is let to work from after barley to spuddle the graten; and for this purpose a plate of iron is fixed across the share at about four or five inches from the point, and the same axle-tree and wheels are made use of that were before employed for breaking out the furrows; and with this plough and two horses three acres of ground may be spuddled in a day, by setting the share point in the interval, so that the iron or fiin may embrace a row on each side; and when the whole field is thus spuddled, the harrows and rollers are to succeed, by which the haulm and weeds, will be completely extracted at a trifling charge, and the ground be laid in readiness for ploughing the seed furrows, at which time these beans or peas which may have been fired will have vegetated, and are destroyed by the plough; so that the farmer may, from this mode of husbandry, be not less confident of growing a clean sample of wheat, than if his ground had been summer followed.

On thin, chalky, or gravelly grounds, notwithstanding what has just been urged of the good effects of spudding, he added, there are times when it is absolutely necessary to lay off a crop of peas or beans, and to allow them to ripen, as the standing crop effectually prevents the succession of weeds; and in such cases the farmer may consider the mode of husbandry with advantage, which has been heretofore alluded to, as a part of the whole agricultural system of Kent.
BEAN.

observes that it would perhaps be more prudent to omit that work, lest it might contribute towards loosening the soil beyond a due medium; for on these soils the chief aim should be to close them as much as possible, that at wheat feeding time the surface may be perfectly tight; and therefore to roll and harrow the bean and pea ground on such soils, in order to rid the field of the haulm, &c., and when it has lain some time, to plough the seed furrows, are the whole proceeds necessary to prepare it for the succeeding crop of wheat: and this he thinks, the necessity of sowing with this grain or with peas that part of the farm which is most free from weeds, and in the heart belt; not only that these pulses, both of them (especially beans) require to be sown on good land, and on such as has been improved by art, but likewise that the grattens may be so perfectly clean, as not to require the operation of spuddling. In Kent, they cut their beans with a hook, and bind them into sheaves with rope-yarns. These sheaves are set up in shocks of various forms, either five on each side, in the manner of wheat shocks, or in a circular form, four sheaves to the shock. The expense of cutting, binding, and setting up is from 4s. to 6s. or 7s. per acre, according to the degree of goodness in the crop. Some farmers, in such years when the hops have failed, cut up the bind, and referve it as a substitute for rope-yarns to tie up their bean sheaves. But though this practice may at first sight bear the appearance of frugality, it will be found essentially to be the most expensive; as the cutting the hop-vines at that season will be apt to cause them to breed, to the infinite prejudice of the shocks; and thus the future crops may be hazarded by a premature removal of the binding those years when, from the failure of the hops, it should seem to be of no further use. Mr. Marshall, however, recommends the pulling beans in preference to cutting; for, he says, the benefit the soil receives will more than pay for the extra labour in clearing. Another advantage arising from their being pulled, is the stubbornness of the roots keeping the mow open, and admitting a circulation of air. And he says in another place, that by experience he found pulling up by hand far preferable to cutting with sickles; as they may be pulled up not only much fuller, but much cleaner from weeds and graffs than when cut, besides leaving the land in a state of the most perfect. The wale is also less, so much so as to lose scarcely a bean; and the bean stalks are immediately ready to bind and set up; and by the roots lifting them from the ground, the air acquires a free circulation. The work is also easier to the labourer, who finds more upright, and the power required is much less, especially in dry weather. By striking the roots of each handful against the foot, the mould is almost wholly disengaged from the fibres. The soil in the drills, instead of being bound by the roots, and encumbered by the stubble, is left as loose as a garden, and the surface free from obstructions: and if thoroughly hoed, is as fit as a fallow to be sowed with wheat on one ploughing.

Beans are very where an uncertain crop, conseqently the average produce difficult to estimate. In Kent, Mr. Young thinks, they probably exceed four quarters; but in Suffolk he should not estimate them at more than three: yet five or six are not uncommon. According to Mr. Donaldson, a crop of beans, taking the ifland at large, may be supposed to vary from sixteen to forty bushels; but that a good average crop cannot be reckoned to exceed twenty. And in Middlesex, Mr. Middleton tells us, that bean crops vary from ten to eighty bushels per acre. They are rendered a very precarious crop by the ravages of myriads of small black insects of the same species. The lady-birds are suppos'd either to generate or feed on them, as they are observed to be much among them. Mr. Foot says, the average produce is from three and a half to four quarters per acre.

It is ascertained by the author of the Synopsis of Husbandry, that bean straw, if well harvelled, forms a very hearty and nutritious diet for cattle in the winter-time; and that both oxen and horses, when not worked, will thrive on it. Sheep are also very fond of browsing on the pods; and the earing are very nutritious manger meat for horses. But in Middlesex the straw is generally employed in bedding the farmers' horses and other cattle, and in littering the farm yards, where it is picked over by young flock; though sometimes a load is sold for 20s. or 25s. delivered in. When the bean-straw and the roasting-chaff are made use of as a fodder for cattle, they should always be newly threshed, as in that state they are much more nutritious than when they have been kept some time of length.

Crops of this kind are for the most part applied to the purpoze of feeding horfes, hogs, and other domestic animals. In the county of Middlesex all are given to horfes, except what are preferred for feed, and such as are pedled at a good price, and sent to the London markets. When pigs are fed with beans, it is observed that the meat becomes so hard as to make very ordinary pork, but good bacon. It is also supposed that the meal-mengd in many horse-beans among wheat, to be manufactured into bread. And Dr. Darwin remarks in his Phytologia, that a skife or bushel of oats weighs perhaps forty pounds, and a skife or bushel of peas and beans sixty pounds; and that as the skim of peas and beans is much less in quantity than that of oats, he suppos'd there may be at least fifteen pounds of flour more in a skife of peas and beans than in a skife of oats. There is also reason to believe, he says, that the flour of beans is more nutritious than that of oats, as appears in the fattening of hogs; whence, according to the respective prices of these two articles, he supposes that peas and beans generally supply a cheaper provender for horses than oats, as well as for other domestic animals. But as the flour of peas and beans is more oily, he believes, than that of oats, it may in general be somewhat more difficult of digestion; hence, when a horse has taken a stomach full of peas and beans alone, he will be less active for an hour or two, as his strength will be more employed in the digestion of them, than when he has taken a stomach full of oats. Hence it may be found advisable to mix the bran of wheat with the peas and beans, a food of less nutrition but of easier digestion; or to let the horfes eat before or after them the coarse tuffocks of four graps, which remain in moisr pastures in the winter; or halfly, to mix finely cut straw with them.

BEAN, in Gardening. See Vicia.

BEAN-Goofe. See Anas.

BEAN, Ignatius's. See Ignatius's Bean.

BEAN, Kidney, or French, in Botany. See Phaseolus.

BEAN, Kidney, Tree. See Glycine.

BEAN, Malacea, the anguicordium orientale, is a fruit of a shining black colour, of the shape of a heart flattened, with a very thick pedicle occupying almost the whole bals. For the characters of the plant that produces it, see Avicennia Tonon-ofa; and for its qualities, see Anacardium.

BEAN, Molucca, a name given by Sir Robert Sibbald in his Prodromus, and by Mr. Wallace in his description of the Orkney islands to a sort of fruit frequently cast on shore in the north-west islands of Scotland, especially on the coasts most exposed to the waves of the great ocean. They are called by some Orkney beans, and are not the produce of that island, or indeed of any other part of Europe, but of America. Sir Hans Sloane procured four species of them
...where appeared eveu From bear fuppofed, See dainty piece de- its Kamt- which has yellowifii be It nobody Among the alfo said icnturcr eafterly fuppofe, there rally currents eafy and t'f vrrith. forth with. This is defcribed by many authors, and among the ref by sir Hans Sloane, in his catalogue of Jamaica plants; and is found in many other of the hotter parts, both of the East and Well Indies. A third kind of fruit found on these shores, is that called by the people of Jamaica the ash-coloured nickar nut; it has this name from its colour, and from its being perfectly round, of the shape of a nickar, or marble, such as boys play with. This is also common in the East and Well Indies. A fourth kind is also a Jamaica fruit, with the history of which we are not yet well acquainted; nobody has seen it growing, but the fruit itself is preferred in many of the collections of the curious, and has been figured and defcribed by Clofius and others under the name of a round exotick fruit rigid with four rising nerves. These are the principal kinds of fruits thus toffed on shore with us; but how the produfs of Jamaica, or other parts of America, should be brought to the shores of Scotland and Ireland, feems difficult to determine on any certain foundation. It is easy to conceive, that when they grow by the fides of rivers, they may fall off from the trees into them, and be thence conveyed into the fen. It is likewise easy to fee, that when they are thus floating on the furface of the fen, they may be carried about by the winds and currents to a coniderable distance; but their motion this way muft naturally be stopped by the main continent of America, and they muft be forced through the gulf of Florida, or the canal of Bahama, going thence confantly eafit, and into the North American fen. This is easily conceived by a familiar fact which happens every day; which is, that a kind of fen kind, called furgofta, which grows very plentifully on the rocks about Jamaica, is washed off from thence, and carried by the winds and currents, which for the moft part go impetuously the fame way, toward the eal of Florida, and thence into the North American ocean, and is there found floating on the furface. Thus far it is easy to trace our fruits from their native fen; but how after this they should beforwarded to us is unaccountable, unless we fuppofe, that as fhips, when they go fouth eafterly wind, and when they come north eafterly, and generally had a westerly wind, for at high parts in three of the year, if their fruits being brought north by the current from the gulf of Florida, are put into the way of these westerly winds, and by them conveyed to the coasts of Scotland and Ireland. Philofop. Tranf. N. 222, p. 320. 

By the fame mean, that these fruits come to Scotland, it is reafonable to believe that the fame winds and currents brought from America those feveral things towards the Acores and Porto Santo, which are recorded by Ferdinand Columbus in the life of his father; which gave this bold ad- venturer the firft notion that there was fuch a place as Ame-
The inhabitants of Kamthakha hold in high estimation the fat of the bear, as a very favourable and wholesome nourishment; and when melted and thus rendered, fluid, it supplies the use of oil.

Bear’s Skin, makes a fur in great esteem, and on which depends a considerable article of commerce, being used in horsewhips, on coach-boxes, &c. In some countries, cloaths are made of it, more especially bags wherein to keep the feet warm in severe colds. Of the skins of bears’ cubs are made gloves, mitts, and the like. It is used in Russia for beds, coverlets, caps, gloves, and collars for their hounds. Those who travel the ice for the capture of marine animals make their shoe-soles of bear’s skin, which prevents the danger of slipping. A light black bear skin is one of the most comfortable and costly articles of the winter wardrobe of a man of fashion at Peterburgh or Moscow; and even the small white hand of a belle is flit into the large bear muff, which covers the half of her elegant shape. The exportation of bear-skins forms a very considerable article of Russian commerce, independently of those that are used for home consumption.

Bear Garden, a place where bears and other beasts are exposed as a public spectacle to be baited. See Baiting.

Bear, hunting and killing of the. The bear is in a variety of respects a useful animal in Russia and northern countries, that the inhabitants have devised several ingenious methods of taking and destroying them. The most usual way of killing this animal is with fire arms, and spears or darts. The Laplanders knock them down with clubs, as they can easily overtake them in running with their snow-shoes; but they are generally shot from a distance, and then dispatched with spears. In some parts of Siberia, the hunters erect a scaffold of several bales laid on one another, which falling down, crushes the bear, on his slipping upon the trap placed under it. Another method is to dig pits, in which is fixed a smooth, solid, and very sharp-pointed pole, which rests a foot above the bottom. The pit is carefully covered with sods, and across the track of the bear is stretched a thin rope with an elastic bug-bear. As soon as the bear touches the rope, the wooden bug-bear flutters loose; and the terrified animal, endeavouring to save himself by flight, falls with violence into the pit, and is killed by the pointed pole. If he escape this snare, at a small distance, perhaps, several caltrops (see CALTROP) and other instruments of annoyance await him, amongst which a similar terrific log is erected, and where the perfecuted bear, the more he strives to get free, fixes himself more firmly to the spot at which the bug-bear lies in ambush for him. The Keriaks find out a crooked tree, which is grown up in the form of a gibbet, and at the bent summit of it they attach a noose, with a bait suspended to it. The hungry bear, thus allured, eagerly climbs up the tree, and on his moving the branch, the noose draws to, gATHER, and the animal remains suspended to the tree. But the method adopted by the inhabitants of the mountainous parts of Siberia to make this ferocious animal kill himself is more singular and ingenious. They fasten a very heavy block to a rope, terminating at the other end with a loop. This is laid near a deep precipice on the path which the bear usually takes. On having his neck in the noose, and finding that he cannot proceed on account of the clag, he takes it up in a rage, and to free himself from it, throws it down the precipice, which of course kills him after it, and he is commonly killed by the fall. Should this accidentally not be the case, he draws the block again up the acclivity, and renew his efforts, till with increasing fury he either sinks to the ground, or kills himself by a decisive plunge.

The white or polar bear (Ursus Maritimus) lives on the coast of the Frozen ocean, and in some of the eastern and northern isles, where the chance of him is a collateral occupation of the mariners who visit these coasts for the capture of the morse. Black bears are so numerous in Kamthakha, that they are seen roaming about: the plains in troops, and must long since have been exterminated, if they were not here more tame and gentle than in any other part of the world. In spring, they descend from the mountains where they have wintered, to the mouths of the rivers for catching fish, which swarm in all the streams of that peninsula. If the fish are plentiful, they eat only the heads; and when they find nets laid in any place, they dexterously drag them out of the water, and empty them of the fish. Towards autumn, when the fish go up the rivers, they advance with them gradually to the mountains. When a Kamthhadale despairs a bear, he endeavours toconciliate his friendship at a distance, accompanying his gestures by courteous words. Indeed they are so familiar, that the women and girls, when they are gathering roots and herbs, or turf for fuel, are never disturbed in their employment, even in the midst of a whole drove of bears; and if one of these animals comes up to one of them, it is merely to take something out of their hands. They have never been known to attack a man, except when they are roused from their sleep, and they seldom turn upon the mariners whether they be hit or not. Notwithstanding this gentleness of the bear, its utility renders it a valuable object of prey. When the hunter and the bear meet, the contet is generally bloody, but it generally terminates to the advantage of the artful huntsman. Armed with spears and clubs, the Kamthhadale goes in quest of the peaceful bear in his calm retreat; who, thinking only of his defence, takes the faggots brought by his pursuer, and makes them the entrance into his den. The mouth of the cavern being closed, the hunter bores a hole through the top, and then with the greatest security spears his defencel with. Tooke's View of Russia, vol. ii. p. 443, &c.

Dr. Barton, in his " Fragments of the Natural History of Pennsylvania," informs us, that the bears migrate in great numbers, every autumn across the Missilippi, proceeding south, perhaps to the mountains of New Mexico, in search of a milder climate. In the spring they return again by the same route. This migration of the bears is particularly observed at Manchar, on the Missilippi.

Bear leading, to shew tricks, is an ancient practice, which we find prohibited in the canons of the church. Du Cange.

Bear wards urfarii, were a kind of servants in great families among the Romans, who had the care of breeding and feeding those animals. Pfitz. Lex. Ant. tom. ii.
BEA

p. 1110. Our nobility had formerly officers of this kind. The annual salury of one of these belonging to the fifth earl of Northumberland was twenty shillings. Northumb. Household Book.

Bear-Tribe, in Geography, one of the tribes into which the American Indians of the Six Nations are distributed. See Six-Nations.

Bear, Order of the, was a military order in Swizerland, erected by the emperor Frederic II. in 1213, by way of acknowledgment for the service the Swiss had done him, and in favour of the abbey of St. Gal. To the collar of the order, which was a gold chain interlaced with a chaplet of oak-leaves, hung a medal of gold, on which was represented a bear ruled on an eminence of earth; or a bear fable on a ground vert.

Bear-berry, in Botany. See Arbutus.

Bear-bird. See Convolvulus.

Bear's breech. See Acanthus.

Bear's ear. See Primula Auricula.

Bear's eyes. See Verbascum.

Bear's foot. See Helichrysum.

Bear's-head. A term, synonymous with make hisfe, or chipbate. See BEARING.

Bear's Bay, in Geography, or Little Port, lies at the east end of Anticosti island, at the mouth of the river St. Lawrence, in North America.

Bear's Bur, or White Bear Bay, is a very deep bay on the south coast of the island of Newfoundland, towards its west end.

Bear's Cape, the south-east point of St. John's island, near Nova Scotia, in North America. N. lat. 45° 53'. W. long. 62° 40'.

Bear Cove, lies on the east side of the south-eastern corner of the island of Newfoundland, at the head of which is the settlement of Port au Port. It is a good shipping-place for boats. Rencourt's rocks are situated between Bear Cove and Fresh-water bay on the south, 32 miles northerly from cape Race.

Bear Creek, a water of Tennessee river. See Occo-cappo.

Bear's Great Creek, a small creek on the eastern side of Ohio river, north of the town of Louisville, in Kentucky, and near it. A canal is proposed to be cut from this creek to the rapids of the Ohio, which would render the navigation of the river safe and easy. The country on the side of this creek, between Salt river and Kentucky river, is rich and beautiful.

Bear Island, an island near the entrance of Bantry bay, in the county of Cork, Ireland. It is about six miles long, and is very curiously, mountainous, and rugged, but is of great use in defending the passage of the bar by the tory of the south-west ends, so that vessels within the land may ride secure. N. lat. 51° 35'. W. long. 89° 45'. The whole bay was formerly called of Bearhaven; but this name is now confined to that part between the island and the peninsula of Bear, on which is the small town of Castletown, South-Cork. Bearfort. See BANTYRE.

Bear, and Bantyre, the name of a barony in the western part of the county of Cork, Ireland, which is very mountainous, and with the adjoining parts of Carbery and Mulherry, is a most excellent and improved part of the county.

Bear's North, a small island in St. John's bay, Holland's bay. N. lat. 54° 46'. W. long. 90°. - Another small island in the same bay, called South Bear. N. lat. 54° 35'. W. long. 89°.

Bear, or Cherry Island, lies on the coast of Grez island, N. lat. 74° 28'. E. long. 17° 54'.

Bear Lake, Great, is situated in the north-west part of North America, near the Arctic circle, in N. lat. 65°; and W. long. 121°; and a river flows from it in a W. N. W. course, called Great Bear river, which runs into Mackenzie's river.

Bear Lake, Black, lies in New South Wales, North-west from Cumberland house, N. lat. 53° 30'. W. long. 107° 30'.

Bear Lake, White, lies due west from another small lake called Bear lake, both in N. lat. 48° 15'; and the former in W. long. 98° 30'. These lakes are said to give rise to the river Mulippen.

Beats, White, Point of, the east point of St. Peter's river, on the coast of Labrador, in North America, to called from the great number of bears that were seen there. N. lat. 51° 55'. W. long. 55° 50'.

Bear's Port, one of the ports on the coast of Nova Scotia, in North America, between port and cape de l'Heure to the north-east, and cape Sable, the south-west point of Nova Scotia.

Bear River, a river of the north-west part of North America, which runs into the Unigah, or Peace river, in N. lat. 56° 12'. W. long. 119° 28'.

Great Bear River. See Bear Lake.

Bear Roads, N. w., are situated about south by west from the extreme west point of the island of Jamaica. N. lat. 16° 20'. W. long. 82° 55'.

Bear Sound, or Barfand, lies on the west coast of West Greenland. N. lat. 62° 20'. W. long. 49°.

Bear Town, a town of America, in Caroline county, Maryland, about 7 miles north of Greenburg, and about 15 south-east from Cheltenham.

Bear, to, denotes to bring forth young, or to produce fruit. BEERALSTON, in Geography. See BEERALSTON.

BEARD, John, in Biography, an energetic English figure, and an excellent actor, was brought up in the king's chapel. He knew as much of music as necessary to sing a single part at sight; and with a voice that was more powerful than sweet, he became the most useful and favourite figure of his time, on the stage. As a developer of his father's estate, he became manager of that play-house, and discontinued all public singing, which he thought he had been long encroaching rendered necessary. His first marriage was with a lady of quality, a sister of the late Earl of Walgrave, to whom he was a very indulgent and tender husband; and he proved himself to be a man of honour and principle in every transaction of his life. There were so much intelligence and humour in his acting and singing comic parts on the stage, and Scots and Irish ballads in private, as well compensated for deficiencies of voice. He was closely united by friendship to Dr. Boyce, in the performance of whose music he manifested a zeal and even a partiality which were not discoverable for that of any other composer. He died in 1791.

BEARD, in Geography, a town of France, in the departement of Nievre, and chief place of a canton in the district of Decize, on the Loire; 10 miles S. E. of Nevers.

BEARD, in Physiography, the hair growing on the chin, and adjacent part of the face; chiefly of adults and males.

Varnish have been and still are the ceremonies and uniforms of different nations with regard to the beard; Kingdom affirms it, that a considerable branch of the religion of the Tartars conflicts in the management of their beards; and that they waged
waged a long and bloody war with the Perizans, and declared
them infidels, though, in other respects, of the same faith
with themselves, merely because they would not cut their
whiskers after the mode or rite of the Tartars. The
Spazans, from the age of 20 years, suffered their hair and beards
to grow: the hair being deemed an ornament, which became
the freeman and warrior. A Spartan being once asked why
he wore so long a beard, replied, “Since it is grown white
it incessantly reminds me not to dihonor my old age.”
Nevertheles, as they were accustomed to obedience, even in
things the most indifferent, the ephori, when they entered
on office, proclaimed, by sound of trumpet, a decree, com-
manding the people to shave their upper lips, and to submit
to the laws. The Egyptian priests shaved the head, chin,
and whole body. Accordingly, most of the Egyptian figures
are without beard. However, Herodotus informs us, that
in time of calamity, they suffered their beard and hair to
grow. The Affyrians had long beards; and Chryfoltom
observes, that the kings of Peria had their beards woven
or matted together with gold thread; and some of the first
kings of France had, in the same manner, their beards matted
and knotted with gold. The Africans wore long beards, as
may be seen on the medals of Juba. The Greeks, it tradition
may be credited, wore long beards from their heroic times.
Cedrenus informs us, that at Constantinople, in the time of
Zeuxippus, there was a statue of Homer with a long beard.

Atheneeus, from Chryfippus, observes, that the Greeks
always wore their beards till the time of Alexander; and
that the first who cut it at Athens ever after bore the addi-
tion of riperis, florere, on medals. Plutarch adds, that Alex-
ander commanded the Macedonians to be shaven, lest the
length of their beards should give a handle to their enemies:
however this be, we find Philip, his father, as well as Amy-
tas and Archeclus, his predecessors, represented on medals
without beards. The Greeks continued to shave the beard
till the time of Jullianus, under whose empire long beards
were again into fashion, and so continued till Constantinople
was taken by the Turks. The Greek philosophers difting-
uzzled themselves from the vulgar by their long beards.
Aaccording to Laertius (i. vi.) Antithenes was the first of
the philosophers who suffered his beard to grow. This custom,
however, among the philosophers, was not invariable, for the
scholast of Ariftophanes (Nub. 120.) pretends, that the an-
cient philosophers shaved their beards. The Roman phil-
osophers affected to preserve the same distinctive characters of
the mantle and long beard.

Thus Horace describes them:

- - - - -

Solutes iaffit lapientem paucere barbarum.

Sermon. i. ii. sat. iii. v. 34.

Aulus Gellius and Lucian express themselves in a similar
manner. Perius seems to have been so convinced of the beard's
being the symbol of wildom that he thought he could not
bellow a greater enormity on Socrates than calling him
“Magistrum barbatum.” The Sicilians, and the Etrurians,
adopted the customs of the Greeks. The latter exhibited
all their deities with a beard, except Vulcan, but on the me-
dals of the former their kings appear without a beard.

The Romans for a long time wore beards and long hair.
Cicero, in his oration for Celsus, (c. 14.) mentions the
“barba horrida, quam in italicis antiquis & imaginibus vi-
dominus.” Livy (v. 51.) speaking of the senators, who re-
mained in Rome, after the entrance of the Gauls, says that
they wore a very long beard: “barbae, ut tum omnibus
promissa erat.” Scipio Africanus appeared with a long beard
in his interview with Massinissa.

Hence Ovid calls the an-
cient Romans “intonsi;” thus,


Juvenal alfo (Sat. xvi.) describes them in the same manner.

“Et credam dignum barba, dignumque capillis

Majorum.”

Pliny observes, that the Romans did not begin to shave
till the year of Rome 454, when P. Tienius brought over
a number of barbers from Sicily; he adds, that Scipio Af-
ricanus was the first who introduced the mode of having
every day. The philosophers, however, retained the beard;
and the military men wore it short and frizzled, as we see it
upon the triumphal arches, and other monuments. In time of
grief and affliction they suffered their beard and hair to grow,
as was the case with M. Livius in his retirement from Rome,
and with Augustus after the defeat of Varus. The Greeks,
on the contrary, in time of grief, cut their hair and shaved
their beards; (Seneca Benef. v. 6.) which was also the custom
among some barbarian nations. Accordingly, the custom of
letting the beard grow is a token of mourning in some coun-
tries, and of mourning in others. The first fourteen Roman
emperors shaved, till the time of the emperor Adrian, who re-
tained the mode of wearing the beard. Plutarch tells us he
did it to hide the scars in his face.

Antoninus Pius and Marcus Aurelius wore a beard un-
der the character of philosophers. The succceffors of Juffian
refumed the habit of wearing beards, and the latter Greek
emperors had them of an extraordinary length. The ancient
Britons in the time of Cesar shaved the rest of the body,
extep the head and upper lip: “Capillus ac barbam radere
preter caput, et labrum superius.” Bell. Gall. i. v. c. 14.

Diodorus Siculus and Tacitus inform us, that the ancient
Germans shaved the beard, except that on the upper lips;
and, among the Catti, a nation of Germany, a young man
was not allowed to shave or cut his hair till he had flain an
enemy. Tac. de Mem. Germ. 31. Among the Jews it was
reckoned ignominious to shave a perfons beard. 2 Sam. x. 4.

Strabo relates, that the Indian philosophers, the Gym-
osophists, took great pains to attract the veneration of
the people by the length of their beards. The Goth
and Franks wore only a mustache, called by Plutarch
“barbae,” and by the Latins “crilla.” While the Gauls
were under their sovereignty, none but the nobles and Chris-
ian priests were allowed to wear long beards. When the
Franks made themselves masters of Gaul, they assumed
the same authority as the Romans; the bondmen were expressly
ordered to shave their chins; and this law continued in force
till the entire abolition of servitude in France. In the time
of the first race of kings, a long beard was a sign of nobility
and freedom; and the kings were emulous to have the largest
beards. Egnid, secretary to Charlemagne, speaking of the
law kings of the first race, says, they came to the as-
semblies in the field of Mars, in a carriage drawn by oxen, and
fat on the throne with their hair diwelled, and a very
long beard.

It is not easy to fix with precision the time when the
beard was first shaven among the young Romans. It was
sometimes when the toga virilis was assumed, according to
Suetonius (Calig. 10.) Macrobius (Somn. Scip. i. 6.)
says, it was about the age of 21. Augustus did not have
before the age of 25. Hence young men with a long down, or
“lausura,” upon the chin, were called “juvenes barbatiu,”
or “beni barbati.” The first growth of the beard was
conferred to some god, finally to the Lares. Nero con-
secrated his in a golden box, set with pearls, to Jupiter
Capitolinus. The day on which the young men, among the
Greeks and Romans first shaved the beard, was a festival;
visits of ceremony were paid them; and they received preseuts
from their friends. To this purpose, Juvenal says, Sat. iii. 186.

”Ille
“Ille metit barbarum, crimen hic depositi amati: 
“Pleas domus libris genitibilibus!”

Slaves, among the Romans, wore their beards and long hair; when manumitted they shaved the head in the temple of Ter- rona, and put on a cap, or "pileus," as a badge of liberty. Those who escaped fromshipwreck, shaved their heads; and persons accused of a capital crime, cut their hair and shaved, and went to the capital to return thanks to Jupiter.

Persons of quality had their children shaved the first time by one of the same, or greater, who by this means became peculiar, or adoptive fathers of the children. As the child grew, a person became godfather of the child by his own will, which is the custom; thus it is a practice, that one of the grandfathers of the twenty-fifth A.D. was, that Alaric should touch the beard of Clevis to become his god- father.

As to ecclesiastics, the discipline has been very different on the subject of beards; sometimes they have been encharged to wear them from a notion of too much effeminacy in shaving, and that a long beard was more suitable to the ecclesiastical gravity; and sometimes again they were forbid it, as seeming pride to lock beneath a venerable beard. The Greek and Roman churches have long disputed together about their beards; since the time of their separation, the Romans have been to have given more into the practice of shaving, by way of opposition to the Greeks; and have even made some express constitutions "de radendis barbis." The Greeks, on the contrary, espouse very zealously the cause of long beards, and are extremely fond of them in the Roman churches.

By the statutes of some monasteries, it appears, that the laymen were to let their beards grow, and the priests among them to shave; and that the beards of all that were received into the monasteries were blest with a great deal of ceremony; and there are still extant the prayers used in the solemnity of consecrating the beard to God, when an ecclesiastic was chosen.

Le Comte observes, that the Chinese affect long beards excessively; that nature has balked them, and only give them very little hair. One, which, however, they cultivate with great care; the Europeans are strangely eluded by them on this account.

The Russians wore their beards till within these few years, when the czar Peter enjoined them all to shave; but, notwithstanding his injunction, he was obliged to keep on foot a number of officers to cut off continually the beard of such as would not otherwise part with it. For enforcing his regulation, which was violently opposed, he laid a tax on long beards, and many submitted to it rather than part with their beard, which was unmercifully held to be an ornament to the person.

Superstitious Russians even thought it to be an external characteristic of the orthodox faith; and those who were too poor, or too partial to pay the tax for retaining the beard, religiously preserved the beard that was shorn off, and laid it deposited in the coffins with them on their decease, that they might present it to St. Nicholas, on his refusing to admit them, as barbarous idolaters, into the kingdom of heaven. As a proof of the high estimation in which the beard was held in Russia formerly, it is a law in the Novgorodian code, that whoever plucks hair from another's beard shall be mulcted four times as much as for cutting off a finger.

In the eighteenth century, King Charles the Third, of France, was so much moved for his captive electors than for his long white beard, which he suffered to hang down on the outside of his collar, to encourage the troops in battle, and to rally them when defeated. Upon the death of the great Henry IV. of France, who was succeeded by a beardless youth, the beard was proscribed. Louis XIII. ascended the throne of his glorious ancestor without a beard; and his courtiers immediately reduced their beards to whiskers, and a small tuft of hair under the lower lip. The duke of Sully, however, though he encountered ridicule, would never adopt the effeminate custom. Whiskers continued in fashion in the commencement of the reign of Louis XIV. who, as well as his courtiers, were proud of wearing them; so that they were the ornament of Turenne, Condé, Colbert, Corneille, Molière, &c.

In Spain, Philip V. ascended the throne with a shaved chin; and the warriors imitated the prince, and their example was followed by the people. The change, however, produced lamentations and innumerable. Hence arose the Spanish proverb, denoting, "Since we have lost our beards, we have lost our souls." The Portuguese, whose national character is much the same, have imitated them in this respect. Accordingly we read, that in the reign of Catherine queen of Portugal, when the heave John de Castro had taken the Castle of Din, in India, he was under the necessity of borrowing from the inhabitants of Goa a thousand pitholes for the maintenance of his fleet; and that as a security for the loan, he left them one of his whiskers, telling them "All the gold in the world cannot equal the value of this national ornament of my person;" and deposit it in your hands as a security for the money. The inhabitants of Goa, it is said, generally returned both the money and his whisks.

We have already observed, that the ancient Britons, in the time of Cæfar, shaved the body, except the head and the upper lip; the hair of which they, as well as the Gauls, allowed to grow to a very inconvenient length. The Anglo-Saxons, on their arrival in Britain, and for a considerable time after, allowed their beards to grow, as well as their near neighbours the Longobards, to whom in every respect they bore a near resemblance. After the introduction of Christianity, their clergy were obliged to shave their beards, in obedience to the laws, and in imitation of all the western churches. This distinction between the clergy and the laity subsisted for some time; and a writer of the seventh century complains, that the nuns of the clergy were so corrupted that they could not be distinguished from the laity by their actions, but only by their want of beards. By degrees the English laity began to imitate the clergy so far as to shave all their beards except their upper lips, on each of which they left a lock of hair; by which they were distinguished from the French and Normans, who shaved their whole beards. The Normans had as great an aversion to beards as they had a fondness for long hair. Among them, to allow the beard to grow, was an indication of the deepest distress and misery. They not only shaved their beards themselves, but when they had authority, they obliged others to imitate their example. It is mentioned by some of our ancient historians, as one of the most wanton acts of tyranny in William the Conqueror, that he compelled the English, who had been accustomed to allow the hair of their upper lips to grow, to shave their whole beards. This was so disagreeable to some of that people, that they chose rather to abandon their country than retain their whiskers. In the fourteenth century long beards were in fashion, and continued to the sixteenth century; so that in the reign of Mary I., the beards of bishop Gardiner and cardinal Pole, appear in their portraits to be of a most uncommon size. The lawyers, however, had a regulation imposed upon this important feature. Towards the close of the sixteenth century, the beard was much defended, and gradually dwindled into mutton-chop or whiskers; and in process of time the practice of having the whole face become universal.
Among the Turks, it is more infamous for any one to have his beard cut off, than among us to be publicly whipt, or branded with a hot iron. They who serve in the seraglio have their beards shaven as a token of servitude; and when they are let at liberty, they permit it to grow. With them and the Persians the beard is a mark of authority and liberty; and the want of moustachios and beards discriminates slaves and women. Hence, it is said, arises the unfavourable idea which they form on the first sight of an European. There are many in that country who would prefer death to this kind of punishment. The Arabs make the preservation of the beard a capital article of religion, because Mahomet never cut his. The Moors of Africa hold by their beards while they swear, in order to give validity to their oath, which after this formality they rarely violate.

The Turkish wives kiss their husbands' beards, and children their fathers', as often as they come to salute them. The men kiss one another's beards reciprocally on both sides, when they visit one another in the streets, or come off from a journey. The Jews wear a beard on the chin, but not on the upper lip or cheeks. Moles forbid them to cut off entirely the angle or extremity of their beard; that is, to imitate the Egyptian fashion, who left only a small tuft at the extremity of the chin; whence the Jews to this day suffer a little fillet of hair to grow from the lower end of their ears to their chins, where, as well as on their lower lips, their beards form a pretty long bunch. In time of mourning the Jews neglected to trim their beards, that is, to cut off what was superfluous on the upper lips and cheeks. In time of great affliction they also plucked off the hair of their beards.

It has been advanced by several historians and travellers, that the Indians of America differed from other males of the human species in the want of one very characteristic mark of the face, viz. that of a beard. From this general observation, the Eskiımions have been excepted; and hence it has been suppos'd, that they had an origin different from that of the other natives of America. Mr. Caulfield, after ten years residence at Niagara, in the midst of the Six Nations, with frequent opportunities of seeing other nations of Indians, affirms, that they do not differ from the rest of men in this particular more than one European differs from another; and as this imperfection has been attributed to the Indians of North America, equally with those of the rest of the continent, he inclines to think, that the affliction is void of foundation in one region as it is in the other. All the Indians of North America, says this writer, except a very small number, who, from living among white people, have adopted their custom, pluck out the hairs of the beard; and as they addict themselves to this practice from its first appearance, it may be suppos'd, that to a superstitious observer, their faces will seem smooth and beardless. As farther proofs that they have beards, he alleges that all of them have an instrument which they use for plucking out the hairs; that when they neglect this for some time, hairs sprout up, and are seen upon the chin and face; that many Indians allow tufts of hair to grow upon their chins or upper lip; and that several of the Mohocks, Delawares, and others, who live among white people, sometimes have with razors, and sometimes pluck their beards out. Accordingly, colonel Butler affirms, that the men of the Six-Nation Indians have all beards naturally, which is also the case with respect to all other nations of North America, which he has had an opportunity of seeing; but that it is the general practice of the Indians to pluck out the beard by the roots from its earliest appearance; and hence their faces appear smooth. The same fact is confirmed by Captain Brent. Phil. Trans. vol. Ixxvi. p. 229. &c.

**BEARD.**

**BEARD, anointing the,** with unguents, is an ancient practice both among the Jews and Romans, and still continues in use among the Turks; where one of the principal ceremonies observed in serious visits, is to throw sweet-scented water on the beard of the visitant, and to perfume it afterwards with aloes wood, which sticks to this moisture, and gives it an agreeable smell, &c.

In Middle age Writers we meet with adlentare barbam, used for frotting and combing it to render it soft and flexible.

The Turks, when they comb their beards, hold a handkerchief on their knees, and gather very carefully the hairs that fall, and when they have got together a certain quantity, they fold them up in a paper, and carry them to the place where they bury the dead.

**BEARDS, plucking the,** was practiced to Cynics by way of contempt. The Stoics, as well as Cynics, affected to be insensitive to injury, and their patience was tried by this practice. Socrates was not exempt from this species of insult and persecution, as we are informed by Diogenes Laertius.

Horace says to a person of this description:

---Vellunt tibi barbam

Laskivi pueri."

_Sermon, Sat. 3. 133._

And _Periplus_ Sat. 1. 133._

"Si Cynico barbam petulans Nonaria vellat."

The fame fatyris represents Jupiter as offering his beard to be plucked by Dionysius the tyrant:

"Ideo alio Rolidam præbuit tibie vellere barbam

Jupiter."

Some authors also speak of _mortgaging the beard, barbam hypothecare._ Du Cange.

**BEARD, touching the,** was an action anciently used by suppliants, and by those who made vows. An instance of this is found in Homer (I. K. 454.) and Pliny (ii. 45.) says, that the ancient Greeks had a custom of touching the chin of a person, whose compassion they wished to excite; the chin being sublimated for the beard. Instances of a similar kind occur in the _Oreôles_ and _Hecubæ_ of Euripides. To touch any one's beard, or cut off a small part of it, was among the ancient French, the most sacred pledge of protection and confidence. For a long time all letters, infusing from the sovereign, had, for greater satisfaction, three hairs of his beard in the seal. A charter of 1211, still extant, concludes with the following words: "Quod ut ratum et stabile perverit in pollueram, prestantis scripto figuli mei romanori appoil com tabius pilis barba mee." Du Cange.

**BEARD, false, barba falsis,** was an artificial one. _Ina_ general court of Catalonia, led in 1351, it is expressly enjoined, "Ne quis barbam falsam feci fictam audacter vel fabricare." Du Cange.

Hottomans have given an elegant dialogue de barba, first printed by Plantin in 1566.

**BEARD, or under-beards,** called also chæra, of a horse, is that part under the lower mandible on the outside, and above the chin, which bears the curb of the bridle.

**BEARD, old-man's, in Botany.** See _Clematis._

**BEARD of a Comet,** denotes the rays which the comet emits towards that part of the heavens to which its proper motion seems to direct it. Thus, the beard of the comet is distinguished from the tail, which is understood of the rays emitted towards that part from which its motion seems to carry it. It is called beard from some fancied resemblance it bears to the beard of a man; or because it is projected before the comet.

**BEARD, in Conchology,** the byssus of the _pinna, the mycelia, &c._ an affemblage of threads or hairs of a down texture that hangs from the body of the animal, and by means of which it
it falls itself to bones, or any other heavy substance; the hairs of the beard terminating in a spungy substance, that adheres very tenaciously to the smoothest surfaces. The thread of this kind of byflus is sometimes woven as an object of curiosity into gloves, lockings, &c. and in point of durability at least, cannot be inferior to any other material that could be employed for that purpose. Some notice is taken of this among ancient writers, who speak of it as a kind of silk. See Silk.

BEARED, beared, duty, denotes a person or thing with a beard, or some resemblance thereof.

In Middle Age Writers, this is sometimes expressed by mulut, q. v. burads in multy fen genus.

The faces on ancient Greek and Roman medals are generally bearded. Some are denominated bearded, as having long beards, etc. the Parthian kings. Others have only a nose about the chin, as the Seleucida family. Adrian was the first of the Roman emperors who nourished his beard: hence all imperial medals before him are bearded: after him, bearded.

The medals of gods, and heroes, in vigorous youth, represent them beardless, except Jupiter, and a few others.

The Roman paid their worship to a bearded Venus, Perseus, and Metis, supposed to have been of both sexes: a statue of whom was also found in the isle of Cyprus. The reason of representing the goddess of beauty with a beard is variously given at by the learned.

Bearded women have all observed to want the menstrual discharge; and several instances are given by Hippocrates, and other physicians, of women, especially widows, in whom, the menses being stopped, beards appeared.

Erebus Nicerembergius mentions a woman, who had a beard reaching to her navel. Bartholin speaks of a bearded woman at Cupinian, who partly, in virtue thereof, paifed for an hermit-hedge.

Bearded, bearded, bearded, in Ecclesiastical Writers, are those otherwise called barstes barstes, in the order of Grammon and the Cistercians. They took this denomination because they were allowed to wear their beards contrary to the rule of the professed monks.

Bearded, bearded, in the, among Floridos, a hawk which is hairy on the edges, as that of the roe, &c.

BEARING, in Geography, denotes diminishing any piece of timber from a given line on its surface, to make the thickness less on the edge.

BEARING, in Manufacture, See Wool.

BEARDSTOWN, in Geography. See Bairdstown.

BEARER, in Architecture, any subsidiary or intermediate support in aid of the principal supports, as the small joints or brackets which bear a gutter or the covering board of a cove, the pieces and blockings under the joints of a ground floor, or the joints, &c. which bear any thing independent of or unconnected with the building, as the bearers of a column, of a vat, or of a platform.

BEARERS, bearers, in Middle Age Writers, are sometimes used for a child's pillows, because they hold the infant in their arms, and pretend to the privileges in the ceremony of baptism. See Child.

The bearers are more particularly used for those who carry the dead to their graves.

In a sense somewhat different from this, we also say bearers, &c.

The ancients had peculiar orders or officers of bearers, called, by the Greeks, bearers, by the Romans, bearded. The vespillones, or hojiuli, were a lower sort of bearers, appointed for persons of inferior rank.

Bearers, in Horticulture, denote the fruit branches, or such as bear fruit.

The bearers, or bearing branches of an apple-tree, and the like, are found to be rougher, and fuller of acerities in their bark, than the other branches.

Bearers, in Heraldry, see Supports.


Bearers, in Law, denote such as bear down and oppose others, and are said to be the same with maintainers. By Stat. 4 Edw. III. c. 11. justices shall enquire of, hear, and determine maintainers, bearers, and conspirators, &c.

BEAR-HAVEN, in Geography a commodious harbour formed by the island of Bear, near the mouth of Bantry bay in the county of Cork, Ireland, into which ships of war and merchantmen often put for shelter: but the adjoining village of Callidtown affords them few resources, and no accommodation. See Fort's Memoir.

BEARING, in Geography and Navigation, the situation of one place from another, with regard to the points of the compass, or the arc of the horizon, that lies between the meridian of a place and a line passing from that place to another; or the angle which a line drawn through the two places makes with the meridians of each.

In other words, the bearing of an object in navigation, is the azimuth on which it is seen; and the bearing of one place from another is reckoned by the name of the azimuth passing through those two places. In every figure relating to any case of plain sailing, the bearing of the line not proceeding from the centre of the circle, or horizon, is found by drawing a line parallel to it from the centre and towards the same point.

To find the bearing of any two places, e. g. cape Clear, and the island of St. Michael's, one of the Azores, by the plain chart; lay a ruler by the two places, take the nearest distance between the centre of the compass, and the edge of the ruler; and in this position, slide one point of the compasses along the ruler, and the other point will point along the point of the compasses, deciding the bearing, which in this case is S.W., that is, St. Michael's lies to the S.W. of Cape Clear, or Cape Clear to the N. E. of St. Michael's. See Sailing.

To find the bearing of any two given places on the globe, lay the graduated edge of the quadrant of altitude over both places, the beginning, or 0, being on one of them, and observe, while the quadrant lies in this position, what azimuth of the nearest fly, or compass, runs mostly parallel to the edge of the quadrant, and that azimuth shows the bearing sought, nearly.

The bearings of places on the ground are usually determined from the magnetic needle; in the managing of the principal part of the surveying; since the bearing and distance of a second point from the first being found, the place of that second is determined; or the bearings of a third point from two others, whose distance from each other is known, being found, the place of the third is determined instrumentally we mean; for to calculate trigonometrically, there must be more data. Mr. Collins gives the solution of a problem in the Philosophical Transactions, where the distances of three objects on the same plane being given, and the bearings from a fourth place in the same plane observed,
firmed, the distances from the place of observation to the respective objects are required. See Surveying.

BEARING, in the Sea Language. When a ship sails towards the shore, she is said to bear in with the land.—When a ship that was to windward, comes under another ship's stern, and so gives her the wind, she is said to bear under her lee.—If a ship falls into a harbour with the wind large, or before the wind, she is said to bear in with the harbour, &c.

In causing they say, bear up, the helm, that is, let the ship go more large before the wind—bear up round, that is, let the ship go between her two sheets, directly before the wind—bear a head, i.e. make haste.

They also say a ship bears when, having two flinders a quarter, she will sink too deep into the water with an over light freight, and therefore can carry but a small quantity of goods.

Bear fail well, to, is said of a ship when she is a stiff-guided ship, and will not touch down on a side, with a great deal of fail.

When a ship is said to bear out her ordnance, it is meant, that her ordnance lies to high, and the will go so upright, that in reasonable fighting weather, she will be able to keep out her lower tier, and not be forced to that in her ports.

A ship is said to bear another, when it is able, in a great gale of wind, to carry out more fails, viz. a top-fail, more, or the like.

Bearing off is also used by Seamen generally in business belonging to the shipping, for thrust off.

Thus, in hoisting any thing into the ship, if it hath hold by any part of the ship or ordnance, or the like, they say, bear it off from the ship's side. So if they would have the breech or mouth of a piece of ordnance, or the like, put from one, they say, bear off or bear about the breech.

Bearing up, or bearing away, is improperly used to denote the act of changing the course of a ship, in order to make her fail before the wind, after she had failed some time with a side wind or close-hauled.

Bearing also expresses the situation of any distant object, estimated from some part of the ship, according to her position. In this sense, the object must be either a head, a foremast, or the beam, before the beam, abaft the beam, on the lee or weather bow, and on the lee or weather quarters.

Bearing of a piece of timber, in Carpentery, denotes the space either between the two fixed extremes thereof, when it has no other support; which is called bearing at length; or between one extreme, and a poll, brick wall, or the like, trimmed up between the ends to shorten its bearing.

Joists are not to bear above ten feet length; nor single rafters more than nine feet. 19 Car. II. c. 3.

Bearing of an arch or vault, denotes the effort which the stones make to burst open the piers, or peddrosis.

This amount to the fame with what the French call poufles.

Bearings, in Heraldry, a term used to express a coat of arms, or the figures of armorials, by which the nobility and gentility are distinguished from the vulgar, and another. See Arms.

Bearing of an organ pipe, denotes an error or variation from the half found it ought to yield. See Temperature.

Bearing pains, in Midwifery. The pains in labour or childbirth are said to be bearing pains when they force the child downward.

Bearing down of the womb, vagina or anus. When the uterus descends from the upper part of the pelvis, and press upon or passes through the os externum, it is called a bearing down (producetia) of the womb. In this case the uterus is included in a duplicature of the vagina, to the upper part of which it is attached. Women who are troubled with the whites (florid albus) or who have borne children, particularly if the perineum was injured, or torn, at the time of the birth of any of them, are most subject to this complaint. It manifests itself at first by a sense of dragging or bearing down of the part; some time after, there is a difficulty in making water, the uterus lying on, and covering the meatus urinarius. In this stage of the complaint, on passing a finger into the vagina, it meets the os uteri, immediately on getting through the os externum. If not now remedied, the uterus continues descending, until it frees the os externum, and hangs down between the thighs; and if still neglected, the part protruded goes on increasing, from the size of a nut to that of a large pear, and in some cases the uterus, covered with the vagina, has been found hanging down beyond the middle of the thighs, and to the size of the body of a Florence flask. When a fold of the vagina only descends, and passes through the os externum, it is called a bearing down (producetia) of the vagina. A similar indisposition affects the rectum, a fold of the gut being forced through the sphincter ani, whenever the forces are voided. This complaint is particularly incident to weak children, though adults are not unfrequently affected with it. As in all these cases there is a relaxed tone of the fibres, the cure is to be effected by the exhibition of such things as strengthen and increase the tone and elasticity of them, by the Peruvian bark and chalybeats, the use of the cold bath, exercise, air, and other applications to the parts, as decoctions of oak bark, pomegranate hulls, balmaline flowers, red rose leaves, &c. to which a portion of red port wine is to be added, and the medicine so prepared is to be injected into the vagina or rectum, and compressed in a keel, in applied to the parts externally, taking care in the mean while that the body be kept moderately open. When the womb is the part bearing down, in addition to these remedies, after returning the womb to its proper situation, a pellitory is to be introduced into the vagina and worn there to prevent its defending again. See Pessary; see also Producetia Uteri, Vaginae, et Ani.

Bearing claus, among cock fighters, denote the foremost toes, on which the bird goes; and if they be hurt or gravelled, he cannot fight.

Bearing of a flag, is used in respect of the flag of his head, or the croches which he bears on his horns.

If you ask what a flag bears, you are only to reckon the croches, and never to express an odd number; as, if you have four croches on his near horn, and five on his far, you must say he bears ten; a false right on his near horn; if but four on the near horn, and six on the far horn, you must say he bears twelve; a double false right on the near horn.

BEARN STONE, Ice Phosphorus.

Beards, in Geography, was a province of France, before the revolution, at the foot of the Pyrenees, about 16 leagues long and 12 broad; bounded on the east by Bigorne, on the north by Armagnac, Turfan, and Chalosse, on the west by Daus, a part of Soule, and lower Navarre, and on the south by the Pyrenees. The plain country is very fertile, producing flax and Indian corn, and the mountains are covered with fir-trees, and within them are mines of copper, lead, and iron, and the lesser hills are planted with vines, which yield good wine. The Spaniards are supplied hence with horses and cattle, and also with linen, of which there is in this province a considerable manufactury. The principal rivers which bear the name of Gaves, are the Gave de Bearnais, and the Gave d'Oleron. Bearn forms now the department of the Lower Pyrenees; and its capital is Pau.

BEAST, in Zoology, an appellation given to all four-footed
footed animals, fit for food, labour, or sport. See Brute, and Zoology.

Authors make this difference between "beasts of the forest" and "of chase," that the first are "silversonic, the latter "campileon," i.e. beasts of the wood, make their abode all the day time in the great forests and secret places of the woods, and in the night feed on trees and plants feeding on trees, whilst their denomination "silversonic" q. d. beasts of the wood.

"Beasts of the chase" reside all the day time in the fields, and on the mountains afar off, to prevent surprise; but on night's approach, they feed, as the reet, in meadows, &c. whilst their denomination "campifero," q. d. beasts of the field.

In our Statute books, "beasts of chase" are five: the buck, deer, fox, martin, and raccoon. "Beasts of the forest," called beasts of venery, are the buck, hind, bear, and wolf; and "beasts and fowls of the chase" are the hare, coyote, peafant, and partridge. See Game.

No other, according to Maxwell, are accounted beasts or fowls of warren, than hares, coyotes, peafants, and partridges. Lord Coke is of another opinion, distinguishing beasts of the warren, from fowls of the warren. Under the former he includes hares, coyotes, and rats; the latter he divides into "flagecon, campileon, and aquatic." To the first belong the peafant, wood-eeek, &c. to the second the partridge, quail, rad, &c. to the third the mallard, hen, &c. Coke on Littleton, p. 233.

"Beasts of burden" is understood of all quadrupeds employed in carrying goods on their backs. To this class belong elephants, dromedaries, camels, horses, mules, asses, and the sheep of Mexico and Pern.

"Beast," in Games of Chance, a game at cards, played thus: the backs cards are the king, queen, &c. of which are formed three heaps, designated the king, the play, and the trotelet. Three, four, or five may play; and to every one: are dealt five cards. Before the play every one throws to three heaps. He that was most tricks takes up the heap called the queen; he that has the king takes up the heap, so called; and he that has three of any sort, at three fours, three fives, three sixes, &c. takes up the trotelet heap.

"Beast at order," is where the player or person that undertakes the game, loses it to the other, and is, for the penalty of which a forfeit is equal to the stake played for.

"BEASTAN," in Geography, a town of Peru, in the province of Segeilana, 80 miles N.W. of Lima.

"Beasts, rather, for mortar.

"BEAT," in Fencing, denotes a blow or stroke given with the sword. There are two kinds of beats, the first performed with the blade of a man's sword, and the other with the shaft of his adversary's, which in the schools is commonly called baton, from the French baton, and is chiefly used in a pursuit, to make an open upon the adversary. The second and best kind of beat is performed with the forte of a man's sword upon the blade of his adversary's, with a spring, as in a beating, but with a jerk, or dry beat; and it therefore must properly for the parades without or within the sword, because of the return of a man's sword, which is from his adversary, whereby he procures to himself the better and safer opportunity of manceuvring.

"BEAT," in Geography, a town of France, in the department of the upper Garonne, and chief place of a canton, in the district of St. Gaudens, on the Garonne. All the houses are built of marble, the height of building supplying no other materials. It is built between two mountains, close to the town on each side. The place contains 1596 and the canton 957 inhabitants; the territory includes 2470 kilometres and 25 communes. N. lat. 42° 50'. W. long. 1° 6'.

"Beat," St., mountains of, are mountains of Switzerland in the canton of Berne, near the lake Thun; the rocks of which are calcareous and rugged, and containing in a few places broken petrifications. Some of these rocks are perpendicular, and even impending, and are marked at different elevations with fowls, occasioned by the waters of the lake, which in former periods was probably several hundred feet above its present level.

"Beat," in Horology. See Beats.

"Beat," in the Moulin. A horse is said to beat the dust, when, at each stroke or motion, he does not take in ground or way enough with his fore-legs. He is more particularly said to beat the dust at terra a terra, when he does not take in ground enough with his shoulders, making his strokes or motions too short, as if he made them all in one place. He beats the dust at curves, when he does them too precipitantly and too low. He beats upon a walk, when he walks too short, and thus rides but little ground, whether it be in straight lines, rounds, or passing.

"Beat upon the hand," see Clack.

"Beat of the Drum," in the Military Art, is differently performed, according to the purpooe designed by it. Notice is hereby given of any sudden change; soldiers are summoned to repair to their arms and quarters; and the various movements before and after, and during the engagement, are denoted by different beats of the drum.

The chief beats or beats on the drum are, the general, the affit, the chasse, the march, the revelle, the retreat, &c. See Drum.

"Beat," in Minstrel. A graze marked thus: or thus .

Its effect is just the contrary of a short shak in rapid movements, where it can neither be prepared nor turn.

cd. It confits merely of three notes:

Beat. Efect.

transient shakes:

Explain.
BEATIA, in Ancient Geography, a town of Spain, in Beata, south-east of Cadiz, and near it.

BEATIFICO. See Vision.

BEATIFICATION, in Electricity, a term used by professor Dzu to denote an electrical experiment, by which he inclosed the head of a person strongly electrified, and standing on a large cake of pitch, with a luminous glory, resembling that with which painters ornament the heads of saints. The secret of this experiment, which occasioned many fruitless and expensive trials to the first electricians in Europe, consisted in the use of a suit of armour decked with red, in various figures; and the glory was produced by rays issuing from the edges of the helmet.

Beatification, in the Roman Church, the act by which the pope declares a person happy after death.

Beatification differs from canonization; in the former, the pope does not act as a judge in determining the state of the beatified, but only grants a privilege to certain persons to honour him by a particular religious worship, without incurring the penalty of superstitious worshippers; but in canonization, the pope speaks as a judge, and determines "ex cathedra" upon the state of the canonized.

Beatification was introduced when it was thought proper to delay the canonization of saints, for the greater assurance of the truth and manifestation of the rigorous steps taken in the procedure.

The ceremony of beatification is a previous one to that of canonization; and cannot be performed till 50 years after the death of the person thus honoured. On this occasion, certificates or attestations of the character and miracles of the person for whom this honour is intended, are produced and examined by the congregation of rite. An advocate, called by the people the devil's advocate, is employed to controvert the claims of the candidate; and it is the business of an advocate, engaged on the other side, to obviate and refute the cavils of the adversary. As soon as the saint's claim is confirmed, he is admitted into all the privileges of beatification by the pope's decree. His relics, if any such are found, become henceforth entitled to the veneration of all good Christians; his images are crowned with rays, and a particular office is set apart for him; and the day of his beatification is distinguished by the grant of indulgences and remission of sins.

It is remarkable, that particular orders of monks affume to themselves the power of beatification. Thus Octavia Medicatoria was beatified with extraordinary ceremonies by the Dominicans, for a legacy of 7000 dollars to the order.

BEATING, among Sportsmen, denotes the noise which hares make in Rutting-time.

The word is said to beat, the hart to bell, &c.

Beating, Pulsation, in Medicine, is applied to the regular agitation or palpitation of the heart and pulse. See Pulssation.

Beating of the Heart. See Pulsation.

Beating Flax, or Hemp, is an operation in the dressing of these matters, contrived to render them more soft and pliable.

When hemp has been swengled a second time, and the bundles laid by, they take the strikes, and dividing them into dozens and half dozens, make them up into large thick rolls, which being broached on long strokes, are let in the chimney corner to dry; after which they lay them in a round trough made for the purpose, and there with beetles, beat them well, till they handle, both without and within, as plain as possible, without any hardsets or roughness to be felt; that done, they take them from the trough, open and divide the strikes as before, and if any be found not sufficiently beaten, they roll them up, and beat them over as before.

Beating hemp is a punishment inflicted on loose and disorderly persons.

Beating, in Book-Binding, denotes the knocking a book in quires on a marble block, with a heavy broad-faced hammer, after folding, and before binding or stitching. On the beating of it properly, the elegance and excellence of the binding, and the easy opening of the book principally depend.

Beating, in the Paper Works, signifies the beating of paper on a floor with a heavy hammer with a large smooth head and short handle, in order to render it more smooth and uniform, and fit for writing.

Beating the Wind, was a practice in use in the ancient method of trial by combat. If either of the combatants did not appear in the field at the time appointed, the other was to beat the wind, or to make so many drouishes with his weapon; by which he was intitled to all the advantages of a conqueror. Du-Cange.

Beating the Hands or Feet, by way of praise or approbation. See Applause.

Beating Time, in Music. See Battre la Mesure.

Beating, in Navigation, the operation of making a progress to sea against the wind, in a zigzag line or traverse, by steering alternately close-hauled on the larboard and flarboard tacks. See Tacking.

Beating, Drumming, or Stripping, make one of the moft ancient as well as universal species of punishment. Among the Romans it obtained, under the denomination of verberes, flagigores, flagellares, &c. In the East it still prevails under the name of bofanoada.

Some dillinguish between pulfation and verberation, as if the latter imported a beating with pain, the former without; but this distinction is not always observed.

Beating, in the English Laws. See Battery.

Beating in the Flanks, a distemper to which black cattle are subject, and is an indication of a great inflammation in the bowels.

Beating, in Husbandry. See Burning of Land.

BEATITUDE, imports the supreme good, or the highest degree of happiness human nature is susceptible of.

In which sense, it amounts to the same with what we otherwise called blissfulness and sovereign felicity; by the Greeks called χαρά, and by the Latins sumnum bonum, beatitudine, and beatissimus.

Beatitude, among Divines, denotes the beatific vision, or the fruition of God in a future life to all eternity.

Beatitude is also used in speaking of the theses contained in Christ's sermon on the mount, whereby he pronounced blessed the poor in spirit, those that mourn, the meek, &c.

Beatitude was also a title annually given to all bishops; but of later days restrained to the pope.

It appears to have been sometimes also given to laymen.

BEATON, BEaton, or Bethune, David, in Biography, primate of Scotland, and cardinal of Rome, was descended from a family originally of France, and the nephew of archbishop James Beaton, his predecessor in the privity. He was born in 1494; and having passed through the ordinary discipline of the schools, and of the university of St. Andrew's, he was sent to France by his uncle, for the completion of his education. In the university of Paris he applied with diligence to the study of the civil and canon laws, and also of divinity, in order to qualify himself for the service of the church. At the proper age, he entered into holy orders; but, notwithstanding his clerical character, he was
was employed in several affairs of importance by John duke of Albany, regent of Scotland, and appointed presulent at the court of France in 1519. In 1523 his uncle, being promoted to the archbishopric of St. Andrews, resigned the rich abbacy of Arbroath in his favour, and having obtained from the pope a dispensation for holding it two years without taking the habit, he returned to Scotland in 1525, and took his seat in parliament as abbot. Having ingratiated himself with the young king, whom he had served in France during his minority, he was promoted in 1528 to the high office of lord privy-seal. In this capacity he obtained the king's confidence; and in 1533 he was entrusted with an important commission which required his return to France, where he was amply instrumental in maintaining the attach- ment of James to the French interest, and where he was employed in negotiating several important concerns between the two courts, and in demanding for his master, Magdalen, the king's daughter, in marriage. During his stay at the French court, he gained the esteem of King Francis I. to such a degree, that he granted him several singular favours; inviding him, in 1537, with all the privileges of a native of France, and conferring upon him, in the same year, the valuable bishopric of Mirepoix. King James having espoused the princess Magdalene at Paris in 1535, the abbot of Arbroath accompanied them to Scotland; and after her death, in the same year, he was deputed to negociate a second marriage for the king with Mary, daughter of the duke of Guife, whom he conducted to Scotland in 1538, where their nuptials were celebrated at St. Andrew's. In this year he was advanced by pope Paul III., who wished to attach the clergy of Scotland and England to the see of Rome, to the dignity of cardinal. Upon the death of his uncle soon after, he succeeded to the primacy, and exercised the cardinal powers with which he was invested in evincing his attachment to the religion and interests of Rome, in conducting a very severe inquisition into heretical doctrines, and in causing prosecutions to be instituted against several persons, of whom some were men of family and distinction. It is said, that he had prefigured to the king a roll of 560 of the chief nobility and barons, as suspected of heresy, and if the king's death had not prevented the execution of his designing purposes, these, and perhaps many more, must have fallen sacrifice to his perfidious power, which his policy did not dissemble to conceal. At the elevation of the cardinal, James undertook the invasion of England, and at Solway Moss the royal army was totally defeated in 1542; but this unexpected disaster proved fatal to the king, and he died soon afterwards. The cardinal was the only person of authority who was present with him in his last moments; and he is accused of having forged a will, in which the king appointed him together with three other noblemen to be regents of the kingdom, and disfranchised the minority of young Mary. This fact is considered as unequivocal by the sincerity of modern, as well as the more early historians. But the English interest prevailed, and the earl of Aran was declared to be regent. Upon the Cardinal Beaton was apprehended and confined; but in a little while, he contrived by his political ability a influence not only to be liberated, but to be appointed high-chancellor of the kingdom. The commission of legate "a latere," which he found afterwards obtained from the court of Rome, empowered him to proceed in his favourite design of extirpating heretics. In the execution of this design, he caused several persons to be condemned and executed; and among the rest, Mr. George Wilhart, the most famous presbitant preacher in Scotland, who was born at St. Andrew's in 1546; the cardinal himself, as it has been alleged on the authority of Buchanan, being feated at a window as a spectator of the tragedy. This execution produced great discontent and murmurs amongst the adherents of the protestant religion; and as the forms of law had not been duly regarded, they meditated a revengs. The cardinal, himself, however, apprehended no danger; and so prevalent was his interest at this time, that the earl of Crawford was gratified by marrying his elised first cousin to the cardinal's natural daughter; for notwithstanding his profession and high rank in the church, Beaton, without dispute, kept a concubine, by whom he had several children. In less than three months after the death of Beaton, the event which this good man denounced, and as some have said, without sufficient reason, predicted, happened, to the cardinal. A conspiracy was formed against his life by some persons whom he had disdained; and they, accompanied by a small number of attendants, surprised the castle of St. Andrew's, in which the cardinal lodged, rushed into his chamber, and dispatched him with their swords. One of the conspirators, James McEvilly, expressly invited his revenge to the cardinal's perfecution of Wilhart. This event happened in the latter end of May 1546, and proved fatal to the ancient religion, and to the French interest in Scotland.

Beaton's character is sufficiently marked in the history of his life. Possessed of talents, which qualified him for the high rank to which his ambition aspired, and which he occupied both in the church and the state, he espoused and forwarded the interests of Rome, as the most effectual method of securing his advancement. Dr. Robertson, indeed, ascribes his support of the Romish superintendence, and his enmity to the reformers, merely to political motives; but there is reason to imagine, more especially when we consider the period in which he lived, that a real bigotry in favour of popery might blend itself with the principles and views of ambition and policy. It is certain, however, that his ambition was unbounded, that he was haughty and violent in his temper, that his inconstancy was carried to the highest pitch, and that his character, upon the whole, was extremely detestable. His violence, as a perfector, must ever cause his memory to be held in abhorrence, by those who have any feelings of humanity, or any regard for religious liberty. He appears to have had but little learning, being prevented from acquiring it by hisearly and continued application to public business; and his morals were unbecoming his station. Biog. Brit. Robertson's Hill of Scotland, vol. i. p. 95; &c.

BEATUS, in Ancient Geography, a name given to one of the Oases (See OASIS) of Africa, called an island, because it was surrounded with sand, like an island in the sea, and denominated "incola Beatum," because, according to Strabo, it abounded with water, wine, and other necessaries of life, though encompassed by salt sand deserts. Some have supposed that this Oasus was a district of the "Oasis monstini," about seven days journey west of Thebes. Others suppose that it was situated in the "Regio Ammoniaca," and that it was the site of the temple of Ammon, which was amply supplied with fountains and vegetation, and afforded a very pleasant habitation. Ulpius says, that it was a place of banishment for real or pretend criminals, whence, as it was surrounded by sand, there was no probability of escape.

BEATS, in Horology, are the audible breaks which attend the fall wheel in a clock or watch movement made against its pallet, to maintain the vibration of a pendulum, or oscillation of a balance. The interval between two consecutive beats, in a clock or watch with an ordinary escape, is equal to one vibration or oscillation, but is not exactly contemporary with it, because the latter is counted as commencing at one of the extremities of its arc, whereas, as the former begin at such other degree of its, as the nature
nature of the escapement determines, a vibration here implies either one direct or one retrograde passage through the whole arc of a pendulum, and an oscillation one direct or one retrograde motion of a balance through its whole arc. Hence, in a common clock or watch, the words beat, vibration, and oscillation, are synonymous terms, when applied as the measure of the smallest subdivision of time; there being a stroke of the last wheel at some part of every vibration or oscillation; but in those astronomical and marine time-pieces which have detached escapements, there is but one beat in two vibrations or oscillations, the alternate stroke of the piece which unlocks the detent being usually silent; in these machines, therefore, the beats are fewer by one half than in ordinary ones, notwithstanding the movements, or mechanism of wheels and pins, may be the same in both, and the vibrations or oscillations similar. In any horological machine, the number of vibrations or oscillations which it makes in an hour, is the value of its train, which may be thus determined, viz.: divide double the product of all the wheels, by the exact product of all the pinions, and the quotient will be the train universally; the great wheel and its pinion, however, being used only to regulate the period of going after winding up, and to communicate motion, are left out of the calculation. The reason why the product of all the wheels is required to be doubled, is, that one tooth of the last wheel does not completely clese its pallet in less than two successive vibrations or oscillations in any escapement. The beats of a pocket watch are a very convenient measure of small portions of time, and might be applied to many useful purposes with advantage, particularly if they were each an exact fraction, such as $\frac{1}{2}$ or $\frac{4}{3}$ of the second, which they might as easily be as otherwise. (Vid. Nicholl's Journal, vol. iii. p. 45—and 189, and vol. v. p. 46, 480. Series.) In the best time-pieces or chronometers for determining the longitude, this circumstance is attended to, and the trains are usually either 14,400 or 18,000, namely, either four or five oscillations; i.e. either two, or two and a half beats per second, by reason of their escapements being detached. If the same attention were paid to the trains of common pocket watches, the frequency of their beats would fit them for nice observations in some of the departments of philosophy, and give them, in this respect, a preference even over more accurate instruments with less frequent beats; but at present, the only attention that is paid by the makers to the value of the train of a common watch is, that, for a small balance, it may be a quick one, and for a large balance a slow one; or, in other words, that the momentum of the balance shall not be too much controlled by the maintaining power, which necessary provision might be equally attended to, if the beat were made an exact fractional portion of a second. In any watch the whole train or vibrations in an hour divided by 3600, the seconds in an hour, will give the vibrations per second of that watch. See CLOCK-MOVEMENT, DEAD-BEAT, ESCAPEMENT, &c.

Beats, in Music, are certain pulsations of two continued sounds, as in an organ, which are out of tune, occasioned by warring vibrations that prevent coincidence in any two concords. This phenomenon, which was first discovered by M. Sauveur, has not only been defcribed by Dr. Smith in his "Harmonics" but made the foundation of a system of temperament. "In tuning musical instruments, (says he, Sect. IV. Prop. X.) especially organs, it is a known thing, that while a consonance is imperfect, it is not smooth and uniform as when perfect, but interrupted with very sensible undulations or beats; which, while the two sounds continue at the same pitch, succeed one another in equal times, and in longer and longer times, while either of the sounds approaches gradually to a perfect consonance with the other; still at last the undulations vanish, and have a smooth, uniform, consonance." These beats, the same author observes, are of use in tuning an organ to any desired degree of exactness.

The work of Dr. Smith, though excellent, is far too profound for the perfect most in want of it: the organ and harmonichord tuners are seldom mathematicians; and to comprehend the doctrines laid down in this book, would require as much science as Newton's "Principia".

The beats of two diftant organ pipes, resemble the beating of the pule to the touch; and, like the human pulse in a fever, the more diftant are the sounds, the quicker they beat, and the slower as they become better in tune; till at length they are lost in the coincident vibrations of the two sounds. See VIBRATION, TEMPERAMENTS, and TUNING.

BEATTIE, James, L. L. D., in Biography, a celebrated moral philofopher and poet, was born Nov. 5, 1735, in the county of Kincardine, in North-Britain. His father was in a station of life no higher than that of a little farmer, a chief of men subject to much hardship and indigence in Scotland. He was, however, poftiffed with that laudable spirit which he frequently in that country raifes native genius from obscurity; and he beflowed upon his fon a literary education, first in the parochial school of his neighbourhood, and then in the college of New Aberdeen. The youth was attached to his professor through the studies of the latter, by the liberality of a brother, (his father having died when he was 7 years of age,) and by one of those small exhibitions which have been annexed to it for the encouragement of learning; and it is supposled that he supported himself in the intervals of the fetions by teaching at a country school. For some considerable portion of his early life, it is known that he acted as a schoolmaster, in Kincardinehshire. At length he removed to Aberdeen, and engaged as assistant to the master of the principal grammar-school, whole daughter he married.

The talent which first made him known to the world was that of poetry, which he had cultivated from his youth. In 1761, he published a volume of "Original Poems and Translations," which in 1765 was followed by "The Judgment of Paris." These performances were characterized by richness and elegance of language and melody of verfification; but rather denoted a refined taste in poetry, than a powerful and inventive genius. They probably brought the author into notice at the place of his residence, but seem to have excited little attention among readers in general.

One of the fruits of his rising reputation was to obtain for him the patronage of the earl of Erroll, whose dwelling in the neighbourhood of Aberdeen. Of other benefits, the influence of this nobleman acquired for Mr. Beattie the honourable situation of professor of moral philosophy and logic in the marfhal college of Aberdeen. In this capacity he next appeared before the public as the author of a philosophical work, entitled "An Essay on the Nature and Immutability of Truth, in Oppofition to Sophiftiy and Scepticism," 8vo. 1760. The progress made about this time by Mr. Hume's principles, especially among his countrymen, could not fail of exciting alarm among the friends of revealed religion. How long Beattie had ranked among these, does not clearly appear. An admired poem of his, "The Hermit," in its first form strongly expresses that doubt of a future existence which could not be banifhed from heathen philofophy; and in a poem hereafter to be mentioned, he warmly congratulates himself on having escaped "from Pyrrho's maze and Epicurus' fly." There is a vein of acromony and exasperation in all his allusions to the sceptical philofophy, which renders not improbable the report of a personal offence received by him from Hume; though there is
no reason to doubt that when he wrote his book, he was very finely impressed with the danger of the tenets he opposed, and that he ever after remained zealously attached to the cause of revolution. The author in this work is regarded as a philosophical disciple of Dr. Reid, admitting an instinctive principle of the perception of truth, and founding it upon that faculty of common sense, which acts in a familiar manner upon all, or a great majority, of mankind. As he wrote with more eloquence and a more popular manner than Dr. Reid, his performance was much read, and gained him a number of very respectable friends and admirers. It is allowed, that he has successfully detected many of the sophisms of Hume, and has brought together many ingenious and useful thoughts on this subject; but the foundation of his philosophy has been, especially by Dr. Priestley, been treated as shallow and superficial; and he has been accused for the arrogance which he has displayed towards those of opposite opinions, and for the readiness with which he has imputed to them consequences subversive of morality. Indeed, many parts of his book favour more of the ranticerian than the philosopher. These defects, however, did not render his's acceptable an attempt to a Layman to serve the cause of religion; and among the friends, Bateste acquired on the occasion, were lords Mansfield and Lyttelton, bishops Hard and Porteus, Dr. Johnson, and Mrs. Montague. The influence of Lord Mansfield obtained for him a period of 200l. from his majesty's privy-seal.

In the year 1771, his fame as a poet was extended throughout the kingdom by the publication of the first part of "The Minstrel." The subject of this piece, is the signed birth and education of a poet. The term minstrel is not very happily applied to the character described; nor are the scenes "Gothic days" in which he is placed to be recognized in real history; but there is great beauty in the delineation of the active poetical disposition assigned to him, and in the invention of circumstances by which it is nourished. The flamma that is of Sprat, which is managed with singular dexterity, and made to produce a melody of verification scarcely exceeded in the range of English poetry. The second part of this poem, which appeared in 1774, contains the natural education of the young bard, and enlightens his mind with the lessons of history, philosophy, and science. There are many fine stanzas in this part, which, however, deviates from the original conception; and the work is left a fragment, probably because it was found to involve unavoidable incongruities. To "Minstrel," whatever he derives, is probably the performance on which Beattie's future fame will chiefly depend; and it may be said, it is a proper instance of a place and its most approved poetry in the language.

Mr. Beattie visited London in 1771, and was received with great civility by his acquaintances. The degree of L.L.D. was conferred on him by the college at Aberdeen in 1773, and he returned to London in 1773. In company with two friends and the poet, he moved in London. A new edition of part of "The Egdon Truth," was published in 1779, by a private subscription. In 1780, he moved to Edinburgh, and to Edinburgh people, and to this volume was added, "The Egdon Truth," to which was added a "Lamentation Moral and Cruel." In 1781, published a quarto volume containing "Debates, Moral and Cruel." There are detached essays on various subjects, which formed a part of a course of lectures read by the author in his professional capacity. Many useful and curious topics are discussed in them, without any pretensions to extraordinary facility and acuteness, but in a mode calculated to improve the heart as well as the understanding. The work is not free from somewhat of the warm and dogmatical manner which characterizes the Essay on Truth; and though not unworthy of the writer's fame, it appears to have made little addition to it. The applique given by the bishop of London to a sketch of manuscript lectures to young persons on the evidence of Christianity, induced Dr. Beattie to draw up and publish, in 1785, a work entitled "Evidences of the Christian Religion, Briefly and Plainly Stated," 2 vols. 8vo. This was deemed a plain, elegant, and popular view of the subject well calculated for its intended purpose. In 1790 he published a summary of his lectures under the title of "Elements of Moral Science." The first volume contains a very accurate examination and arrangement of the perceptive faculties and active powers of man. He has also given a cursory view of what is called Natural Theology. The second volume, published in 1793, comprehends much miscellaneous information in ethics, economics, politics, and logic, including rhetoric, towards the latter part of his life. It was the last publication of the author, whose time was much occupied with the duties of his station, and with social and domestic concerns; of which one, if the desired to his heart was the education of his eldest son, James Hay Beattie, a youth of very extraordinary endowments and uncommon moral excellence. He was so successfully taught by his father, as to be made his assistant in the professorial chair at the age of nineteen; and he became the most intimate friend and beloved companion of his revered parent, when he fell into a decline, which carried him off in 1790, at the age of 22. Dr. Beattie had just time enough, to be the editor of a small volume of the youth's compositions, in verse and prose, to which he prefixed a memoir on his life and character, highly interesting and unaffectedly pathetic. This generous life was followed in 1796 by that of his younger son, Montague Beattie, in his eighteenth year. Their father was unable, with all his resources, to bear up under the accumulated sorrow. The latter years of his life were a blank of existence, which terminated at Aberdeen, on August 15, 1803, in the 66th year of his age. Dr. Beattie was amiable and exemplary in every department of private life, and published the duties of his public station in both a manner, as to confer honour and credit upon the university of which he was a professor. He was a fellow of the Royal Society of Edinburgh.
greatly to revive ancient literature, and Scrioppius bears 
very honourable testimony to his talents as a critic. To-
wards the close of his life he was afflicted with a diabetes,
and obtaining no relief from the baths of Baden in Switzer-
land, he died at Strasbourg in 1547. He was no less dis-
tinguished by his integrity and modesty, and his mild and 
conciliating temper, than by his great learning. He pro-
tected great regard for Luther, and detested the tyranny 
which the clergy exercised at that period; but he never 
openly declared in favour either of Luther or of any other 
reformer. Although he was no less displeased than Eraf-
mus with the errors that had blended themselves with re-
ligion, he was an enemy to schism, and wished, by prudent 
reformation, to preserve the unity of the Christian church. 
Of his works, written in Latin, which were numerous, we 
shall only mention his "Observations on Pliny's Natural Hi-
story," his "Notes on Livy," his "Preface and Anno-
tations to Tacitus," his "Epitile prefixed to Erasmus's ed-
tion of the Works of Origens," his "Preface to the Works 
of Erasmus, and his "Origines Gothicë," to which we may 
add his best work, entitled "De rebus Germaniae libri tres," 
printed at Ulm in 1603, with the annotations of James 

BEAU, Charles Le, was born at Paris in 1701, and 
became professor of rhetoric in the college des Graffins, 
then professor in the college-royal, secretary to the duke of 
Orleans, and perpetual secretary and penionary of the 
academy of inscriptions. Like Rollin, he united the charms 
of eloquence with profound erudition, and was no less, than 
this eminent professor, beloved by his pupils. His most 
considerable work was his "History of the Lower Empire," 
in French, 22 vols. 12mo., which is written in a correct and 
elegant style. He also wrote several learned dissertations 
in the "Memoirs of the Academy of Belles Lettres," and 
"Histoire et Archéologie," on the academicians. His 
private character was amiable, and he was much esteemed 
for his worth and geniality. He died at Paris in 1778. 
His younger brother, John Lewis Le Beau, was professor 
of rhetoric in the college des Graffins, and member of 
the academy. He published a discourse on the condition of 
fortune most suitable to a man of letters; and an edition of 
"Homer, Greek and Latin," 2 vols. 1746, and of 
"Cicero's Orations," 3 vols. 1750; both with notes. 
Nouv. Dict. Hill.

BEAUV, in Geography, a spacious and commodious 
harbour on the S. E. part of the Falkland islands, capable 
of accommodating a large fleet of ships in perfect safety. 
It is almost surrounded by the land, has good anchorage, and 
is sufficient depth of water.

BEAUBASSIN BAY. See Chignecto.

BEAUBASSIN Bay, is also a bay on the south coast of 
the fleet of Magdalen, at the S. E. angle of the fleet, where 
it extends to the W. It is nearly opposite to Wallis's har-
bour on the north coast, is a spacious bay, and has an open 
entrance.

BEAUCARIE, a town of France, and chief place of 
a canton in the district of Nimes and the department of 
the Gard, on the right bank of the Rhone, opposite to Tarragon, 
with which it has a communication by a bridge of boats. 
This town carries on a considerable commerce in wool, silk, 
flax, flax, spices, drugs, leather, cotton, &c.; and it has an an-
imal fair which lasts for six days. The part of the Rhone 
is well constructed. The principal building is the collegiate 
curch. The place contains 7943 and the canton 16,853 
habitation. The territory includes 162 kilometres and 4 com-
unies. N. lat. 43° 18'. E. long. 4° 30'.

BEAUCARI DE PECULION, Francis, in Biography, a 
poetical scholar of the sixteenth century, was descended from 
an ancient family of the Bourbonoys, and born in 1514.

In consequence of his literary reputation, he was appointed 
preceptor to cardinal Lorrain, the second son of the first 
duke of Guise, and attended him to Rome. On his return, 
he was promoted to the bishopric of Metz, and at-
tended his pension to the council of Trent, where he dislin-
"guished himself by his eloquence. He was of uiligious 
jury, in the council. He was a man of singular service in 
reforming the fathers of the church on the perplexity occa-
sioned by different opinions concerning marriage; for he de-
volved a decree, framed in terms so 
ambiguous as to be accommodated to the variety of op-
"nions that were held, and by the different faiths in which it might be interpreted to satisfy all parties. However, 

gave offence to the votaries of the papal power by main-
taining the independence of the episcopal order, and his op-
inion on this point was disfavored by the cardinal of Lorrain.

In 1568 he resigned his bishopric to Lewis, cardinal of 
Lorrain, and retired to his castle of La Chrette in the Bour-
bournois. Here he employed himself in composing a "His-
tory of his own Times," which was written in Latin, and 
complished the events from the year 1462 to 1567. This 
work was discontinued about three years before his death, 
which happened in 1591. It remained in MS. for several 
years, the author having declined the publication of it for 
fear of giving offence; but being found in his library by 
Philip Dute, he printed it at Lyons in 1625, in folio. It 
is deemed a well-written, and upon the whole, a faithful 
history; though too favourable to the house of Guise, and 
very hostile to the Huguenot party. Beaure, some time 
after he had taken possession of his fee, engaged in a con-
troversy with the Calvinists upon the future state of child-

BEAUCHE, or Beausse, in Geography, the name given 
before the revolution to a country of France, part of Orleanoys, 
now the department of Eure and Loir, which was so fertile 
in every part, as to be called the granary of France. Its 
capital was Chartres.

BEAUCHENES ISLAND, a small island to the S. of 
the Falkland islands, in S. lat. 53°, and W. long. about 
52° 35'.

BEAUCHASTEL, a town of France, in the de-
partment of the Ardeche, 34 leagues S.S.W. of Valence.

BEAUCHIEF ABBEY, was situated in a pleasant 
valley, on the north side of Derbyshire, in England, with-
in a short distance of the town of Sheffield. This celebrated 
religious house was founded by Robert Fitz-Ranulpht, lord 
of Alfreton, between the years 1172 and 1176, for regular 
canons of the premonstratensian order. Since the disolution 
of monasteries, 26th of Henry VIII. this abbey has con-
tinued to crumble by the decay of time, and only a part of 
the chapel remains to mark the character of this once 
proud pile. See Peg's History of Beauchief Abbey, 4to.

BEAUDUN, a town of France, in the department of the 
Var, and chief place of a canton, in the district of Bar-
jols; 12 miles N. E. from Barjols.

BEAVER, in Zoology, the English name of Castor 
Fiber, Linnæus, which fee. Pennant calls Sorex Mos-
chatus of Pallis, the Long nofed beaver.

BEAVER, Bever, and in Latin Fiber, Castor & Castorius, 
John, in Biography, a benedictine monk; in Wolfinster 
Abbey, flourished about the beginning of the 14th century. 
He is represented as a person of ingenuity and industry, and 
a great master of the history and antiquities of England, 
for the study of which he particularly devoted himself. 
He wrote, "Chronicle of the Britih and English Affairs," 
from the coming in of Brute to his own time, which remains in 
MS. in the Cottonian library; and also a book "De Rebus 
Canobi
from the bodies of the fowlers, who have worn it for some time; this, though better than the dry, is yet only used for hats.

Its chief use is in the composition of hats, furs, &c. Besides this, in 1669, an attempt was made to employ it in other merchandises; accordingly, a manufactury was settled in the Palais de S. Antoine near Paris, where they made cloths, mantles, stockings, &c. of caffer, with a mixture of wool. The manufacture flourished for a while, but soon decayed, it being found by experience that the fells left their dye when wet, and that when dry again they were harsh and flinty, &c.

After the hair is cut off the skin is used in hats, the pelt or skin itself is used in various covers, &c. for the covering of mails and trunks, in flippers, &c.

Beaver is chiefly imported by the Hudson's-bay company, from the northern parts of America, where the animal abounds. Beaver skins are also procured in considerable abundance on the western coast of North America. See FUR.

Beaver's Tower, in Geography, lies between Margaret's creek, an upper N. W. branch of Muskingum river, and the north branch of that river; at the head of which north branch there is only a mile's portage to Cayahoga river. Beaver's town is distant about 85 miles N. W. from Pittsburg.

BEAUFET. See BUFFET.

BEAUFORT, HENRY, in Biography, cardinal and bishop of Winchester, was the natural son, legitimised by parliament, of John of Gaunt, by Catherine Swineford, who afterwards became his third wife. Having been educated at Oxford and Aix la Chapelle, he was advanced, at an early period of his Life, to high stations both in the church and the state. In 1397 he became bishop of Lincoln, in 1399 chancellor of the university of Oxford, and dean of Wells, in 1404 lord high chancellor of England, and in 1405 bishop of Winchester. During the reigns of his brother, Henry IV., and of his nephew, Henry V., he does not seem to have possessed much political importance; but he lived in great splendour, and acquired immense wealth, so that he was able to lend Henry V. 20,000l. to aid his expedition into France, and thus to divert him from the design of attacking the revenues of the church. Upon the death of Henry V. he was appointed one of the guardians of his son Henry VI. during his minority; and in 1425 he was again made lord chancellor of England. In 1425, the difference that subsisted between him and the protector, Humphrey duke of Gloucester, not to fouch a height, that Beaumont thought it necessary to appeal to his nephew, the duke of Bedford, then regent of France, and to request his presence for bringing about an accommodation. Upon the arrival of the report an affability of the nobility was expressed at St. Albans; but then interposition proving fruitless, the decision of the court was referred to the parliament held at Lancaster in 1426. The duke of Gloucester produced six articles of accusation against the bishop, of which he was acquitted; and the disputants being enjoined to cultivate mutual friendship, departed with outward appearances of perfect unity. The regent, however, in order to gratify his brother, the protector, took away the great seal from the bishop. In 1428 the duchy of Bedford returned to France, and was accompanied by Beaumont to Calais, where he was invested with the dignity of cardinal, with the title of St. Eulalia, conferred upon him by pope Martin V. He was also honoured by the same pope with the character of legate; but on his return to England, he was forbidden the exercise of it by royal proclamation. As he was likewise appointed the pope's legate in Germany, and general of the crusade against the Hultars, or heretics of Bohemia, he obtained from parliament the grant of a sum of money, and a body of forces, for the more effectual execution.

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cution of his office. Having embarked with his troops for France, he was obliged, for some time, with reluctance on his own part, to employ them under the duke of Bedford; and he then proceeded with them to Bohemia, where he remained for some months, till he was recalled by the pope. In 1430 he accompanied King Henry into France; under the title of the king's "principal councilor," and performed the ceremony of crowning the young monarch in the church of Notre Dame, at Paris. The honors, however, which he received during his absence, were, in his estimation, an inadequate compensation for the mortification resulting from the duke of Gloucester's successful attempts for humbling his pride, and restraining his power. He not only procured an order of council, prohibiting any of the king's subjects accompanying the cardinal, if he should leave the king without his permission; but he attempted to deprive him of his bishopric, as insufficient with the dignity of a cardinal. On his return, and for his more effectual security against these hostile attempts, he obtained, by the interference of the house of commons, letters of pardon for all offenses committed by him contrary to the statute of "provisors," and other acts of "premunition." This pardon was renewed five years after, viz. in 1437, for all crimes whatsoever. Notwithstanding these precautions, the duke of Gloucester, in 1442, drew up fourteen articles of impeachment against him, and presented them with his own hands to the king, who referred the matter to his council. The examination of these articles was attended with such delay, that the protector dropped the prosecution, and the cardinal escaped. The cause of the protector's invertere enmity against the cardinal is said to have been the part which he had taken in mitigating certain pernicious to accuse and perforce his duchies for treason, witchcraft, and other notorious crimes.

Cardinal Beaufort died in 1447, about a month after the duke of Gloucester, in whose murder, it is supposed, he was concerned. The remorse and horror occasioned by the reflection on this event, in the near approaches of his own death, were "more," says Hume, "than could naturally be expected from a man hardened, during the course of a long life, in falsehood and politics," and they are exhibited in very impressible characters in the representation of his last scene by Shakespeare, in the last scene of the third act of the "Second Part of King Henry VI."

"If thou l'eft death, I'll give thee England's treasure, enough to purchase such another island, so thou wilt let me live, and feel no pain."

Again, "Bring me unto my trial when you will. Dry'd he not in his bed? where shou'd he die? Can I make men live, whether they will or no? Oh! torture me no more; I will confess— Alive again? Then, shew me where he is; I'll give a thousand pounis to look upon him—He hath no eyes, the thumb hath blinded them: Comb down his hair; look! look! it flanks upright, like lime-twigs set to catch my wrinkled soul. Give me some drink, and bid th' apothecary bring the strong poison that I bought of him."

The cardinal was buried at Winchester. He died rich, and left large sums for pious and charitable purposes, in various parts of the kingdom; and he ordered 10,000 masses to be said for his soul. "Haughty and turbulent, and fond of pomp and power, he is allowed to have been a faithful and able servant of the crown." Mr. Hume describes him as a prodigy of great capacity and experience, but of an intriguing and dangerous character. Hume's Hist. vol. iii. p. 135-173. Biog. Brit.

Beaufort, Margaret, distinguished by her munificent encouragement of literature, was the daughter of John Beaufort, duke of Somerset and grandson of John of Gaunt; she was born at Oldfield, in Bedfordshire, in 1441. Her first husband was Edmund earl of Richmond, by whom she had one son, Henry VII. king of England. Her second husband was Sir Henry Stafford, second son of Henry duke of Buckingham. She had three sons, Thomas lord Stanley, afterwards earl of Derby, by neither of whom she had any issue. Waving all pretensions to the crown in favour of her son, she devoted her life to exercises of piety and charity, and derived her chief pleasure from relieving the indigent and distressed. She kept constantly in her house twelve poor people, whom the lodged, fed, and clothed. She extended her patronage to the students of both universities, and to men of learning throughout England. In 1502 the instituted two perpetual public lectures in divinity, one at Oxford, and the other at Cambridge, which still subsist under the name of Margaret professorships. At Cambridge she established a perpetual public preacher, whose duty it should be to preach, at least, six sermons every year, at certain churches in the dioceses of London, Ely, and Lincoln; and she also founded a perpetual chantry at Winchcombe minster, in Dorset, for teaching grammar. But her noblest institutions were the colleges of Christ and St. John in Cambridge, the former founded in 1505, for one master, twelve fellows, and fourty scholars. She was a founder of the Abbot's Hospital. She founded a new grammar school in her own city, which still subsists; and the multitude of her charitable bequests may be seen by any traveler, who will take the trouble to examine the registers of the free schools and hospitals in her patronage. She died in 1509, and was interred in the chapel of her son Henry VII. in Westminster Abbey. She is the reputed author of the translation of two devotional pieces from the French, and also of rules and orders for the prudence and attire of noble ladies at funerals. Biog. Brit.

Beaufort, in Geography, a town of France, in the department of the Mayne and Loire, and chief place of a canton, in the district of Bauge. The place contains 5900 and the canton 15,125 inhabitants; the territory comprehends 200 kilometres and 7 communes. The castle of Beaufort gives the title of duke to the noble family of Somerset, literally descended from John of Gaunt, duke of Lancaster, and the house of Lancaster obtained this castle from Blanche of Artois, queen of Navarre, wife to Edmund Crouchback, second son of king Henry III., and first earl of Lancaster. N. lat. 47° 26'. W. long. 0° 3'.

Beaufort, a town of France in the department of the Drome, 2 leagues N. E. of Crest.

Beaufort, a town of Italy in Savoy, on the river Oron, 30 miles E. N. E. of Chambery. By the late French arrangement, this is the chief place of a canton in the department of Mont Blanc, and district of Montiers. The place contains 3070 and the canton 7357 inhabitants: the territory includes 1821 kilometres and 4 communes. N. lat. 45° 46'. E. long. 6° 48'.

Beaufort, a district of the lower country of South Carolina, lying on the sea-coast, between Combahee and Savannah rivers. It is 69 miles long and 37 broad; and divided into four parishes, containing 18,753 inhabitants, of whom only
only 4,196 acres. The northern part of this district is a large forest of trees; but the land is fit for farming. It sends twelve representatives to the legislature of the state. The amount of taxes is $2,114,914.10, 11th, rating.

BEAULON is the chief town of the above-mentioned district. It is situated on the mouth of the Dore, at the head of Roque, at the mouth of the Orne. It is a pleasant though small town, and has a fine harbour, but it has not a large population. There is a considerable wharf. Its population is about 7,000 S. W. from Caen, and about 27 from Calais. N. lat. 51° 47'. W. long. 77° 20'.

BEAULON is a part of the North of France, and the capital of the district of Villedieu, in the district of Val-d'Aulne, in the department of the Eure-et-Loir, in the province of Normandy.

BEAULON, or Beauron, a town of France, and the capital of the district of Villedieu, in the department of the Eure-et-Loir. It is situated on the right bank of the Orne, and is about 22 miles from the mouth of that river, and 45 miles from S. W. from Orleans. The town contains 4,852 inhabitants on a territory of 1,700 square miles, including 71 communes. N. lat. 49° 46'.

BEAULON, a small fertile village in the New Forest, Hampshire, is a part of the manor of the abbot of Beaulieu, which was granted in 1324 to King John, by his uncle, for the support of the abbot's household. The town has a fine church, dedicated to St. Peter, which is said to have been founded by the abbot of Beaulieu, and is now a parish church.

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BEAULON, a town of France, in the department of the Loire, and the capital of a canton, in the district of Sables d'Olonne, in the department of Vendée, and the capital of a canton in the district of Redon. The town contains 1,285 inhabitants. — Also, a town of France, in the department of the Loire, and the capital of a canton, in the district of Sables d'Olonne, in the department of Vendée, and the capital of a canton in the district of Redon. The town contains 1,285 inhabitants.

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BEAUMARCHÉ, a town of France, in the department of the Gers, lies about 20 miles from Auch. Lat. 43° 55. W. long. 60° 1'.

BEAUMARIS, or Beaumaris, the principal and central town of the island of Anglesea, North Wales, is situated on the eastern bank of the river Menai; which forms a fine spacious bay opposite the town. The castle, intimately connected with the early history and foundation of this town, owes its origin to Edward I. who, having erected two magnificent fortresses at Caernarvon and Conway, deemed it necessary to raise another at this place, for the purpose of enforcing obedience and subjection among the conquered Britons of Anglesea. The foundation of this structure was laid in 1295, in a place called Donor Maris, which afterwards assumed the compound French terms beaufort, fair, and merisies, merlins.

The favourable situation of the castle enabled the engineers to make such a fosse or ditch round it, as might be constantly filled with water from the bay, and a canal was also cut between the river and castle, that small vessels might carry their freightages immediately to the walls of the latter. This fortress being complete, the royal founder appointed Sir William Pickmore, a gentleman, the first governor, who was also nominated captain of the town. The same person (one instance excepted) was always appointed to these two offices; and his annual stipend was forty pounds as capite, and twelve pounds three shillings and fourpence as captain. The castle and town were guarded by 24 folders, at four-pence a day each. Other persons had proportionable pay; yet from every man's salary a certain sum was deducted monthly towards the payment of infant preachers and teachers, and for letters and intelligence. The castle becoming very burdensome to the people, occasioned many contentions between the inhabitants of the town and those of the fortresses. Battles sometimes ensued. One of them called the black fray, happened on a market-day, in the time of Henry VI., and it produced great slaughter. The history of these fortresses presents a continued series of oppression and irritation; and it seemed a grand policy of the English governors to exclude the Welsh from those strong holds, and their dependant towns, which they had wrested from the subjugated Cambrians. By a rental of the borough property of Beaumaris, taken even as late as 1608, there appear only seven Welsh names, and one burgage in the tenure of a Welshman. The castle was given by Henry IV. to Percy, earl of Northumberland, for life; and Richard III. granted the confiscated and captiveship of the castle and town to Sir Richard Huddleton, knight. From the time of Sir Rowland Villerville, alias Brytong, the reputed base son of Henry VII., and capite of the castle, the garrison was withdrawn till 1642, when Thomas Chevile, then capite, replenished it with men and ammunition. It was then held for Charles I. whose throne was in danger. The gentlemen of this town and island being warm partisans for the monarchy, determined to oppose the parliamentary forces which had assembled at Conway, and had deputed five commissioners to manage their business. The islanders refusing to surrender on summation, were invaded by about 1500 men, horse and foot, whose superior discipline and courage soon routed and conquered the royalty. On the 22d of October 1648, the town and castle surrendered to General Myton; colonels Bulkeley and Whiteley were made prisoners; and the inhabitants agreed to pay to their conquerors 5000l. within fourteen days. The castle is now the property of the crown. It stands in the grounds of lord Bulkeley, attached to the east end of the town, and covers a considerable space of ground. Though partly in ruins, yet its outer walls, several towers, and many parts remain, to characterise its dimensions and architecture. It is surrounded by a fosse, with a entrance to the east between two embattled round and square towers. Within the fosse is the principal body of the castle, which is nearly of a square form, having a round tower at each angle, and another in the centre of each face. The area is an irregular octagon, about 57 yards from north to south, and 60 from east to west. In the middle of the north side is the hall, twenty yards long and twelve wide. What was formerly the porter's lodge is now used as the bridewell.

A gallery of communication extended round the buildings of the inner court; and in different recesses of this were square holes, which seemed to have opened into dungeons beneath. The two eastern towers served also as dungeons, the descent to which was dark and narrow. On the eastern side of the castle was a small chapel, some of which remains.

The town of Beaumaris is not very ancient; nor do we find any particular records of it previous to the erection of the castle, fo much as it assumed some consequence, and Edward I. surrounded it with a wall, made it a corporation, and endowed it with certain privileges. In the 27th of Henry VIII. Anglesea, with eleven other counties of Wales were impropriated and furnished to send members to parliament, but no return was made from this county till the 33d of Henry VIII. when Newborough, now a poor decayed village, sent one member. Since the 2d of Edward VI. Beaumaris has been regularly represented by one member, and the right of voting was vested, in 1729, in a mayor, two bailiffs, and twenty-one capital burgesses. Though this town has not an extensive trade, yet it has a custom house for the usual reception of goods, a large town-hall with assembly-room, a free school, almshouses, and a handsome church or chapel with a lofty square tower. The free school and almshouses were founded by David Hughes; the flir in 1603, and the latter in 1614. Here are a weekly market on Saturday, and a fair annual. It is situated 59 miles W. by N. from Chester, and 25 N.W. of London. Lat. 53° 14'. W. long. 4° 15'.

The Bay of Beaumaris forms a fine expanse of water before the town, and ships can ride safe at anchor in six or seven fathom water, even when the tide is out. From this to the opposite shore at Aber is a distance of about four miles, yet the channel at low water does not occupy above one mile. The remainder is a uniform bed of sand, called Traeth-Telaran, or the Lavan sands. These, the Welsh supposèd, were anciently quite free from water, and formed a habitable part of Carmarvonshire; which Mr. Pennant admits, and endeavours to prove, by showing that the sea has made great encroachments at Abergeley, and that several bodies and roots of oak trees have been found in a tract of hard loam at a considerable distance from the present shores.

About one mile from Beaumaris stand some shattered remains of Llangaff, which Camden called "a famous religious house in times past," and belonged "to the friars minor, unto whom the kings of England shewed themselves very bountiful patrons, as well in regard to the friars' hospitals, as also because (that I may speak out of the public records of the kingdom) were buried a daughter of king John, a son of a king of the Danes, the bodies also of the lord Clifford, and other knights and squires, who in the time of the noble and renowned kings of England were slain in the wars against the Welsh." This monastery, erected by Llewelyn ap Gorwerth, was consecrated in 1240, by Howel, bishop of Bangor; and in a few years afterwards burnt in the intestine of Madoc. At the dissolution, Henry VIII. took the convent and its possessions to one of his courtiers. The family of Whyte (now extinct) afterwards became possessed of it, and built a respectable house, which has since been enlarged, modernized, and the grounds much improved. It
is now one of the seats of Sir Robert Williams, Bart. Near
this place a severe battle was fought, in 819, between the
Welsh and the Saxons under their leader Egbert, who had
invaded the island, and given it then, for the first time, the
name of Anglesea. The Saxons at first proved victorious,
but were strongly opposed by Brian Frith, the Welsh
prince, who after some severe battles expelled the invaders
from this island.

Two miles north of Friars are the remains of the priory
of Penmon, consisting of little more than the ruinous refec-
tory and part of the church. This priory for Benedic-
tine monks was endowed, if not founded, by Prince Ievelyn ap
Jerewarth before 1221.

Near Penmon is a well surrounded with a wall and three
fountains, having two doors or entrances. This was a fons,
baptismal, or holy well. About a quarter of a mile distant
is an ancient cromlech, six feet high, the shaft of which is curi-
ously ornamented with sculptured chequered work. At the
distance of about one mile from the shore is Ynis Seiriol,
or Seiriol's island, now called Pielholm. This was once
appendant to the monastery of Penmon; and the remains of
a square tower still mark its religious appropriation. This
island is sometimes called Puffin island, from its being much
frequented by birds of that name. From the beginning of
April to the beginning of August, immense numbers of these
and other sea-birds resort to this spot. To the west of Piel-
holm are three smaller islands, called Ynis Llygod, or the
Monfe islands.

In the channel which washes these islands, the large oysters
called the Penn are taken by the dredge, and great quan-
tities are picked, packed in fagan cases, and sent to different
ports of the kingdom.

Baron Hill, the seat of Lord Bulkeley, is finely sited on
an eminence, overlooking the town, castle, &e. The
original mansion of this family in Wales was Court maor,
in Creek-street, Beaumaris. The present mansion was built
by Sir Richard Bulkeley, for Prince Henry, son of James I.
The house has since been enlarged and greatly improved by its
present proprietors, under the direction of Mr. W. Wyat.
The grounds of this domain are irregularly fine; a beautiful,
and the various prospects of sea, mountain, and fayern
fields, are highly grand and interesting.

About five miles south-west of Beaumaris is Plas Newydd,
an elegant modern mansion, built in a casetettled stye, be-
coming to the east of Ubridge. The house is large, com-
modious, and handsome, and the ancient woods around it
give it a venerable character. Close behind the house are
two Cronleths, the largest of which has been long de-
rated by the name of Cronlech of Mona. See Cron-
lech. The same interesting term called "Bemasr's Bay," with
notes: "A Tour round North Wales," by the Rev. W.
Bagley; and "Mr. Pennant's Tours in North Wales."

BEAUMASS. See Mass

BEAUMASSE. See Beaumaise

BEAUMASSE, LAURENT ANGLIELLE DE LA, in Bi-
ography, a modern French writer, was born in 1727, at
Versailles, in the diocese of Allais. Having been invited
to Denmark to undertake a professorship of French Belles
Letters, he opened his course by a "Discours," printed in
1751. But the climate being too severe for his constitution,
he quitted Denmark with a pension and the title of coun-
delor. In his return by way of Berlin, he wished to form an
acquaintance with Voltaire, of whose writings he was a pal-
fete admirer; but their irritable dispositions produced a
quarrel, which admitted of no reconciliation, and which pro-
duced personalities equally displeasurably to both. On his ar-
ival at Paris, in 1753, his publication, entitled "Mes Pen-
fers," caused him to be confined in the Bastille; and soon
after his liberation he was committed to the same prison on
account of his "Memoirs of Maintenon." After his second
liberation, he retired into the country; but in 1772, he was
called back to Paris to occupy the pill of king's librarian,
from which death removed him in consequence of a disorder
of his breast, in November 1773. The principal of his
works are: "A Defense of the Spirit of Laws;" "Mes Pen-
fers," a satirical work; and "Memoirs of Madame, Maintenon," 6
vols. 12mo, soon followed by 9 vols. of her "Letters;"
"Letters to M. de Voltaire," 1761, 12mo, upon the pernicious
of which Voltaire acknowledged, "the raffle has a great
deal of wit;" "Thoughts of Seneca," Latin and French;
He left some MSS. He is said to have been of an open
and frank temper, but hasty, captious, and addicted to

BEAUMETZ-LES-LOGES, a town of France, in the
department of the Eure, and chief place of a canton, in the
district of Bernay; 2 leagues S. E. of Bernay. The
town contains 448 and the canton 9350 inhabitants, on a territory
of 1950 square kilometres containing 24 communes

BEAUMES, a town of France, chief place of a can-
ton in the department of Vaucluse and district of Orange.
The town contains 1573 and the canton 5452 inhabitants;
the territory includes 1224 square kilometres and 9 communes.

BEAUMETZ-LES-LOGES, a town of France, in the
department of the Straits of Calais, and chief place of
a canton in this district of Artois; 2 leagues S. W. of
Arras. The place contains 318 and the canton 10,683 inhabitants;
the territory includes 1873 square kilometres and 29 communes.

BEAUMONT, ELIE DE, in Biography, was born at
Charenton, in Normandy, in 1752, and admitted an advocate
in 1753, in which profession he did not succeed for want of
voice. Upon his retirement from the bar, he became a writer,
and addressed a variety of eloquent pieces to the magistrates
ded to the public. His memoir in behalf of the unfortunate
Cobé family produced a permanent effect. This was succeeded
by many others, no less interesting and pathetic. Beaumont's
imagery was lively, but like other persons of the same
quality, he was liable to dejection. He was lord of Caen, in
Normandy, where he organized an interesting festival, called
"Fête des bon gens," or the good people's feast. He died
at Paris, in 1788.

The wife of the preceding, MADAME ELIE DE BEA-
umont, was born at Caen in 1732, and is known with reputa-
tion by her "Letters of the Marquis de Robles," 12mo,
a work which exhibits a faithful picture of the manners
and characters of the courtiers of the day, and of their fash-
ions and dependants. In society she was beloved and re-
pected by reason of the amiable qualities of her disposition,
the polite ease of her manners, the soundness of her understanding,
and the extent of her knowledge. She died at Paris in

BEAUMONT, FRANCIS, an eminent dramatic poet,
was the son of Francis Beaumont, one of the judges of the
common pleas, and born at Grace-Dieu, in Leicestershire, an ancient
seat of the family, in 1585 or 1586. He was educated at
Cambridge, and afterwards admitted a student in the Inner
Temple, where his devotion to the Muses diverted his at-
tention from the study of the law. Beaumont and Fletcher
were unfortunately connected, and wrote so much in concert,
that it is difficult at this distance of time to assign to each
his appropriate part in the numerous compositions, tragic and
comic, which have been published under their common
name. Tradition report, and probably with truth, that
Beaumont was peculiarly disfigured by judgment, which
was commonly employed in correcting and reestablishing
the superfluities of Fletcher's wit. It appears, however, from
an examination of Beaumont's dialect productions, and particularly his little 'Masque of the Inner Temple and Gray's Inn, and also a poem entitled the "Hermaphrodite," that he was by no means d. of poetic imagination and invention, and that his verisimilitude is elegant and harmonious. Beaumont was esteemed a judge of the plays, that Ben Jonson, who expressed his affectionate regard for him in a copy of verses, submitted all his writings to his censure, and is thought to have waived himself of his judgment in correcting, if not in copyrighting, all his plots. He died before he had attained the age of 50 years, in March, 1615; and left a daughter, who was in possession of several poems of her father's writings, but they were all lost at sea in his voyage from Ireland, where he had lived for some time in the duke of Ormond's family. Besides the plays in which he was jointly concerned with Mr. Fletcher (for an account of which see Fletcher), he wrote the dramatic piece above mentioned, entitled, "A Masque, &c." "A Poetical Epistle" to Ben Jonson, "Verdes to his Friend Milter John Fletcher upon his Faithful Shepherds," and other poems, printed together in 1653, 8vo. The elder brother of the publisher, Mr. John Beaumont, was distinguished by his poetical talents, and was the author of several pieces which had considerable merit. A volume of his miscellaneous poems was published by his son in 1629, Gen. Dict. Biog. Brit.

BEAUMONT, in Geography, a town of France, in the department of the Calvados, and chief place of a canton, in the district of Pont l'Evêque, 6 leagues E. N. E. of Caen.

—Allo, a town of France, in the department of the Côte d'Or, and chief place of a canton, in the district of Is-sur-Tille, 16 miles N. E. of Dijon.—Allo, a town of France, in the department of the Channel, and chief place of a canton, in the district of Valognes, 8 miles west of Cherbourg. The place contains 558 and the canton 9,493 inhabitants, on a territory of 1634 kilometres, including 20 communes.

—Allo, a town of France, in the department of Puy-de-Dôme, and chief place of a canton, in the district of Clermont-Terradon, 2 miles south of Clermont.—Allo, a town of France, in the department of the Seine and Oise, and chief place of a canton, in the district of Pontoise, on the Oise, 33 miles north of Paris.—Allo, a town of France, in the department of the Dordogne, and chief place of a canton, in the district of Bergerac, 3 leagues west of Belvès. The place contains 1505 and the canton 7,124 inhabitants on a territory of 170 kilometres and 14 communes.—Allo, a town of France, in the department of the Haute-Marne, and chief place of a canton, in the district of Voves, 5 leagues N. E. of Le Mans. The place contains 2,402 and the canton 14,720 inhabitants: the territory includes 175 kilometres and 15 communes.

BEAUMONT en Argonne, a town of France, in the department of the Ardennes, and chief place of a canton, in the district of Sedan, 5 leagues S. E. of Sedan.

BEAUMONT-ET-CHANCEUX, a town of France, in the department of the Meuse, and chief place of a canton, in the district of Marcinelle, 4 leagues N. E. of Nevers.

BEAUMONT-le-Vieux, in the department of the Seine and Marne, and chief place of a canton, in the district of Nemours, 4 leagues S. W. of Nemours.

BEAUMONT de Lomagne, a town of France, in the department of the Upper Garonne, and chief place of a canton, in the district of Castel-Sarrazin, 5 leagues N. W. of Grenade. The place contains 6700 and the canton 11,177 inhabitants: the territory includes 200 kilometres and 20 communes.

BEAUMONT-le-Roger, a town of France, in the department of the Eure, and chief place of a canton, in the district of Bernay, 8 leagues E. of Bernay. The place contains 1406 and the canton 13,685 inhabitants: the territory includes 2271 kilometres and 26 communes. N. lat. 49° 54'.

BEAUMONT SUR Y, a town of France, in the department of the Marne, and chief place of a canton, in the district of Reims, seated on the Vesle, 8 miles S. E. of Reims.

—Allo, a town of France, in the department of Jemeppe, and chief place of a canton, in the district of Charleville. The place contains 1376 and the canton 7438 inhabitants: on a territory of 1774 kilometres, including 10 communes.

BEAUNE, a town of France, in the department of the Mayenne and Loire, and chief place of a canton, in the district of Baugé, 3 leagues south-west of Angers, and 3 miles west of Baugé.

—Allo, a town of France, and principal place of a district, in the department of the Côtes d'Or, 7 leagues south of Dijon. The place contains 8313 and the canton 23,900 inhabitants: on a territory of 300 kilometres. The northern canton includes 13 and the southern 16 communes. N. lat. 47° 16'. E. long. 5° 57'.—Allo, a town of France, in the department of the Loiret, and chief place of a canton, in the district of Pithiviers. The place contains 2657 and the canton 14,855 inhabitants: the territory includes 250 kilometres and 24 communes.

BEAUPLEADER, or BEAULIEU in Lozé, a shipwrecks on the statute of Marlbridge, 52 Hen. III. c. 11, whereby it is provided, that no fine shall be taken of any man in any court for fair-pleading, i.e. for not pleading aptly and to the purpose. But Beauplader is as well in respect of various pleadings, as of the fair-pleading, by way of amendment. 2 Inst. 122.

BEAUPRE', in Geography, an island in the Pacific Ocean, so called after the name of Beaupré, engineer-geographer to the expedition fitted out for search of La Perouse, lying west of the new Hebrides, in S. lat. 20° 14'. E. long. 161° 27'. It is very low, and about 1500 toises long.

BEAUPREAU, a town of France, in the department of the Mayenne and Loire, and chief place of a district, 3 leagues S. of St. Florent. The place contains 1640 and the canton 11,150 inhabitants: the territory includes 260 kilometres and 11 communes.

BEAUESNE, a town of France, in the department of the Somme, and chief place of a canton, in the district of Dourlens, 2 leagues S. E. of Doullens.

BEAURAING, a town of France, in the department of the Sambre and Meuse, and chief place of a district in the district of Dinant: the place contains 452 and the canton 607 inhabitants: the territory includes 2574 kilometres and 33 communes.

BEAUREGARD, a town of France, in the department of the Dordogne, 4 leagues south of Perigueux.—Allo, a town of France, in the department of Puy-de-Dôme, 3 leagues south of Clermont-Ferrand.—Allo, a town of France, in the department of Lot, 5 leagues S. E. of Cahors.

BEAUREPAIRE, a town of France, in the department of the Saone and Loire, and chief place of a canton, in the district of Louhans, 24 leagues east of Louhans. The place contains 817 and the canton 8,409 inhabitants: on a territory of 1224 kilometres, including 7 communes.—Allo, a town of France, in the department of the Hère, and chief place of a canton, in the district of Viene, 3 leagues S. E. of Vienne. The place contains 1800 and the canton 9,550 inhabitants: on a territory of 195 kilometres including 14 communes.

BEAURIEUX, a town of France, in the department of the Aisne, and chief place of a canton, in the district of Laon, 35 leagues N. W. of Reims.

BEAUSÔRE, ISAAC DE, in Biography, a learned French Calvinist minister, was born at Nort, in Switzerland,
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in 1653, and descended from a family of Provence, originally named Boffa, and changed into Beaufobre on their return to Switzerland, from the wars of St. Bartholomew's. Having completed his education at the protestant college of Saumur, he declined the profession of the law, in which he was tempted to engage by flattering prospects, and determined to devote himself to the Christian ministry. Accordingly he was ordained at the age of 22 years, and formed a church in Paris for 3 or 4 years; but when his place of worship was shut up, his zeal prompted him to break the bishop's seal, which was affixed to the door; and on this account being condemned to an "ordre honorable," he left his country, and took refuge in Holland.

Under the patronage of the princes of Orange, he was appointed chaplain to her daughter, the princess of Anhalt Dussau; and in 1668, settled at Berlin, where he had leisure to prosecute his studies. In 1659, he published the first result of his theological acquisitions, under the title of "A defence of the Reform.," which was very favourably received by his party. In 1674, he obtained a very advantageous settlement among the French refugees at Berlin, which was the place of his residence for the remainder of his life. He held several offices of distinction among his brethren, and discharged the duties connected with them in a manner honourable to himself, and satisfactory to them. At the same time he was absorbed in his application to his studies, and thus acquired that extensive knowledge, for which he was so eminent. The first work which he undertook, and which occupied many years of his life, was "A History of the Reformation." This work, which he left in manuscript for the press, was published at Berlin in 2 vols. large 8vo. in 1734, 1755; under the title of "Histoire de la Réformation, ou Origine et Progrès du Lutherainisme dans l'Empire, &c." i.e. A History of the Reformation, or an Account of the Origin and Progress of Lutheranism in the Empire, and in the States, where the Confession of Augsburg was received, from the year 1517 to 1730. Although the origin and progress of Lutheranism be the principal objects of this work, in the delineation of which the author has revealed himself of the materials contained in the excellent history of Socinian, it contains also details and illustrations of several political and ecclesiastical transactions, that are not to be found in Socinian, or in any other written books. It also contains a very curious and ample narrative relative to the progress of the reformation in France and Switzerland, and the character, learning, and writings of those who fostered it and maintained or opposed the doctrine and ordinances of the reformers. Beaufobre was also employed with the celebrated Fleury by the court of Berlin in the French edition of the New Testament. This work, of 12 vols. 8vo. published in 1718, in 2 vols. 4to, with ample prefaces and notes, was well received. Beaufobre was one of the principal members of the academies, and was "Anonym" and confided interval to the "Belgique," a journal of literature, of which he was the director as long as he lived. In 1739, he published "A dissertation sur l'Anne de Beaufobre," i.e. A Dissertation on the Life of Beaufobre; and in 1740, "Un traité de la Religion," i.e. A Treatise on Religion, published in 3 vols. 8vo. and 1750, "Histoire de Munich," published in 2 vols. 8vo. and died in 1739, aged 64 years, in Leusa, 1739. To the death of this learned and zealous friend of the cause of truth, we shall add the following tribute: The celebrated historian Gibbon pays of it (Hist. Decl. &c. vol. viii. p. 260, note): "This is a treasure of ancient philosophy and theology. The learned historian spins with incomparable art the system of opinion, and transforms himself into the hero of his own mind, as the man he guides against calumny, does not allow sufficient scope for superstition and fanaticism." The candid and impartial Lardner (Works, vol. iii. p. 539), after acknowledging his obligations to Beaufobre, from whom however he occasionally differs, says of this work, that "it contains not only a biographical history of the Manichees, but likewise several entertaining and useful digressions concerning the opinions of the heathen philosophers, and the most early Christian sects," and he closes with expressing a wish, "that some learned man might have sufficient leisure and encouragement to give us a handlyme edition of it in English." "As for me," says Beaufobre himself (Hist. Man. &c. p. 732), "what heaven has preserved from the spirit of the church, who knew no greater good than freedom of thought, nor any more delightful employment than the search of truth, never greater pleasure than that of finding and speaking it, I have found ecclesiastical history with as little prejudice as possible."

In the composition of his sermons, Beaufobre employed much time and care, and they contained much original matter, moral and theological, and a fund of the most striking oratory. His talents for preaching, and his powers for conversation, continued unparalleled to his seventy-sixth year. He was eminently a polished scholar, and adorned a person, naturally agreeable and prepossessing, with all the acquired graces of good company. The qualities of his heart were not less distinguished than the faculties of his mind-radiating. He was kind, generous, cheerful, and disinterested, always ready to perform acts of friendship, and desiring every degree of malvolence and slander. He enjoyed life without interruption from the weakkens of advanced age to his eightieth year, and died on June 5th, 1738. Beaufobre was twice married, and left children by both wives, of whom Charls Lewis was pastor of a church in Berlin, and made him felt known by some learned works; and Leopold was colonel of a regiment in the Russian service. Four volumes of posthumous sermons were printed at Leusa, in 1755. Mem. for la Vie, &c. de Beaufobre, prefixed to the second volume of his Hist. du Manichéen.

BAUSET, Ed., in Geography. See BAUSET.

BEAUTY, in a general and popular sense, denotes that quality, or the whole and union of qualities in the objects of our perception, whether they be material, intellectual, or moral, which we contemplate with emotions of complacency and pleasure; and it is referred by many writers to a principle or faculty, called by some an "internal sense," and by others a "reason." (See these articles.) In a more strict and philosophic use, beauty may denote that sentiment of delight which is excited in the mind by objects of perception, that we are led to admire, or to take pleasure in.

The word Beauty, according to Dr. Hutcheson, (Essay concerning Beauty, &c. p. 7.) means the idea of a set of objects, and that kind of beauty, which consists of power in receiving this idea, which he denominates an internal sense. This sense is common to all other beauty as a general sense, and in every other species of beauty. But it is not made hard and abstracted, as it is in the object, which is the idea of itself considered, without relation to any mind which receives it; for beauty, he says, his other names of relatable ideas, properly denotes the perception of some
Beauty.

some mind; and, therefore, by absolute beauty he means only that beauty which we perceive in objects without comparison to any thing external, of which the object is supposed to be an imitation or picture; such as that beauty perceived from the works of nature, artificial forms, figures, and theorems. Whereas comparative or relative beauty is that which we perceive in objects, commonly considered as imitations or refinements of something else. The general source of our ideas of beauty, according to this writer, is uniformity and variety; and what we call beautiful in objects seems to be in a compound ratio of uniformity and variety, so that where the uniformity of bodies is equal, the beauty is as the variety, and vice versa. This position he illustrates by a number of examples deduced from different figures, from the works of nature, from the inward structure and outward form of animals, and the proportion of their parts to each other, from the harmony of found, from theorems or universal truths, and from the works of art. Relative beauty is founded, as he conceives, on a conformity; or a kind of unity between the original and the copy; and for obtaining this sort of beauty it is not necessary that there should be any beauty in the original; for an exact imitation may still be beautiful, though the original is altogether destitute of beauty. A sense of beauty from uniformity and variety is, in his opinion, universally prevalent among mankind; and for the truth of the fact, he appeals to experience. The same ingenious writer deduces all our ideas of virtue from an implanted sense, called "Moral sense;" (which he; and he describes moral good and evil by the effects accompanying the perception of them.

Dr. Price, in his inquiry into the origin of our ideas of beauty and deformity of actions, (see "Review of the principal Questions in Morals," ch. i. and ii.) distinguishes between our perception of right and wrong, and our perception of beauty and deformity, in considering the actions of moral agents. He observes that, in contemplating such actions, we have both a perception of the understanding and a feeling of the heart; and that the latter, or the effects in us accompanying our moral perceptions, depend on two causes; partly on the positive constitution of our nature, but principally on the essential congruity or incongruity between moral ideas and our intellectual faculties. "Pia facta sunt natura-virtus," Seneca. "Etiam a nillo landcert, natura eet laudabile." Tully. He apprehends, that the above-mentioned author was led to derive all our ideas of virtue from an implanted sense, in consequence of not duly considering the difference between the "homeliwm," and "pathemrm," the "deum," and "aynay," of actions; or of not carefully distinguishing between the different sense of the mind and the sensations attending it in our moral perceptions. With him the "ratio" of an action is the fame with its gratefulness to the observer; and wrong, the contrary. But what, says this writer, can be more evident, than that right and pleasure, courage and pain, are as different as a cause and its effect; what is understood and what is felt; absolute truth, and its agreeableness to the mind. Mr. Bulley indeed (see his "Tracts on the Foundation of Moral Goodness, p. 61," it is of opinion, that all beauty, whether natural or moral, is a species of absolute truth; as refuming from, or consisting in, the necessary relations and congruities of ideas. As to moral beauty, says Dr. Price, one would think, that the author just cited must mean, though his meaning is not very intelligible, that it denotes a real quality of certain actions. But the word beauty seems always to refer to the reception of pleasure; and therefore the beauty of an action, or character, must signify its being such as pleases us, or having an aptness to please when perceived. Nor can it be just to conceive more in the action itself, or to affirm more of it, than this aptness, or that objective goodness or rectitude on which it depends. Beauty and loveliness are synonymous; but an object self-lovely can only mean an object, by its nature, fitted to engage love. It may be added, that the epithets beautiful and amiable are, in common language, confined to actions and characters that please us highly, from the peculiar degree of moral worth and beauty apprehended in them. All various actions must be pleasing to an intelligent observer; but they do not all please to the degree necessary to entitle them to these epithets, as they are generally applied. These observations are applicable, as Dr. Price thinks, with a little variation, to natural beauty; the general sense of which, according to Dr. Hutchcsoir, is uniformity and variety. If we ask, why this pleases? The proper answer is, that by its nature it is adapted to please. There seems, as Dr. P. observes, no more occasion in this case to have recourse to an implanted sense than in the former. Regular objects contribute towards producing the complacency of our minds, and the preference we give them, because they are more evenly viewed and comprehended by the mind; because order and symmetry give objects their liability and strength, and sufficiency to any valuable purpose; and because regularity and uniformity evidence art and design. Bruces are incapable of the pleasures of beauty, because they proceed from a comparison of objects, and a disconcertment of analogy, design, and proportion, to which their faculties do not reach.

To Dr. Hutchinson's theory of beauty, which ascribes it to uniformity and variety, it has been objected, that, though it accounts in a satisfactory manner for the beauty of many figures, yet when we endeavour to apply this principle to beautiful objects of some other kind, as to colour or motion, it will be found inoperative. And even in external figured objects, it is not just, that their beauty is in proportion to their mixture of variety, with uniformity, as many are highly beautiful and please us much, which have no variety at all, and others which possess variety to a degree of intricacy. With respect to the opinion, that natural beauty is a real quality of objects, it may be observed, that it seems impossible for any one to conceive the objects themselves to please more than a particular order of parts, and certain powers, or an affinity to our perceptive faculties, hence arising: and if we call this beauty, then it is an absolute inherent quality of certain objects, and equally existing, whether our mind discerns it or not. However, order and regularity are, more properly, the causes of beauty than beauty itself.

Beauty, says another ingenious writer, (see Reid's Essay on the Intellectual Powers of man, ch. iv.) is found in things fo various and so very different in nature, that it is difficult to say, wherein it consists, or what can be common to all the objects in which it is found. Of the objects of sense we find beauty in colour, in found, in form, in motion. There are beauties of speech, and beauties of thought; beauties in the arts, and in the sciences; beauties in actions, in affections, and in characters. In things so different, and so unlike, is there any quality, the fame in all, which we may call by the name of beauty? Why then should things so different be called by the same name? They please, and are denominated beautiful, not in virtue of any one quality common to them all, but by means of several different principles in human nature. The agreeable emotion, excited by them, and called beauty, is produced by different causes. However, though there be nothing common in the things themselves, yet the kind of beauty, which seems to be as various as the objects to which it is ascriued, must have some common relation to us, or to something else, which leads us to give them the same name. All the objects we call beautiful, agree in two things, which seem to concur in our sense.
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First, when they are perceived, or even imagined, they produce a certain agreeable emotion or feeling in the mind; and secondly, this agreeable emotion is accompanied with an opinion or belief of their having some perfection or excellence belonging to them. Whether the pleasure we feel in contemplating beautiful objects may have any necessary connection with the belief of their excellence, or whether that pleasure be connected with that belief, is surely by the good pleasure of our Maker, Dr. Reid does not determine. Beautiful objects excite an emotion of a flattering and elevating kind, that sweetens the temper, allays angry passions, and promotes every benevolent affection, and disposes to other agreeable emotions, such as those of love, hope, and joy. "There is nothing," says Mr. Addison, "that makes us go more directly to the soul than beauty, which immediately diffuses a secret satisfaction and compliance through the imagination, and gives a feeling to any thing that is great and uncommon. The very first discovery of it striketh the mind with an inward joy, and spreads a cheerful and delightful through all its faculties." This agreeable emotion, produced by beautiful objects, is accompanied with an opinion or judgment of some perfection or excellence of those objects, adopted by its nature for producing that emotion; and this, according to Dr. Reid, is a second ingredient in our sense of beauty. To affect, says this writer, that there is in reality no beauty in those objects, in which all men perceive beauty, is to attribute to man fallacious senses; and thus to think disrespectfully of the Author of our being; who has diffused over all the works of nature a profusion of beauties, which are real, and not fanciful, and thousands of which our faculties are too dull to perceive. This author distinguishes our determinations with regard to the beauty of objects into two kinds, viz. infinutive and rational. In the former case, objects strike us at once, and appear beautiful at first sight, without any reflection, and without our being able to say why we call them beautiful, or being able to specify any perfection which justifies our judgment. Whereas our rational judgment of beauty is grounded on some agreeable quality of the object, which we distinctly conceived, and may be specified. Beauty itself may be distinguished into original, and derived. It is natural and agreeable to the brain of human sentiments and of human language, says Dr. Reid, that in many cases the beauty which originally and properly exists in the things signified, should be transferred to the sign; that which is in the cause to the effect; that which is in the end to the means; that which is in the agent to the instrument.

E. G. The beauty of good lodging is in the original in the art, all its excelence in which it consists; it is derived from the quality of the art, which it signifies; and though there may be good lodging without it, the excellent qualities of mind in beauty, it is still derived from what it naturally expresses. Beautiful lodging is a sign of beauty; the agreeable qualities are the original; and it is the beauty of the original that is reflected on the sign or the instrument.

In the use of the term beauty, some have extended it so as to include every thing that pleases a good taste; and others have restricted it to the objects of light, when they are either seen, or remembered, or imagined. But the latter idea is much too limited, as there are beauties of various kinds, that are not objects of light, such as those of music, or words, character, affectation, and a scene; and personal may impress on the mind the ideas of beauty, who are deprived of the faculty of light. It may be observed, that as the proper object of admiration is grandeur, beauty is the proper object of love and esteem: and the occasion of beauty with real perception was a capital lesson of the Socrates School. It is often ascribed to Socrates in the dialogues of Plato and of Xenophon. We may, therefore, fully ascribe beauty to those qualities that are the natural objects of love and kind affection: of this kind are those moral virtues, which are such a manner constitute a lovely character; such as innocence, gentleness, constancy, humanity, natural affection, public spirit, and the whole train of the soft and gentle virtues: qualities which are amiable from their very nature, and on account of their intrinsic worth. There are also many intellectual talents, which excite our love and esteem of those who possesses them, such as knowledge, good sense, wit, humour, cheerfulness, good taste, excellence in any of the fine arts, eloquence in dramatic action, and also excellence in every art of peace or war that is useful to society. There is like with talents or accomplishments, which we refer to the body, that have an original beauty and comprehensives, such as health, strength, and agility, the usual attendants of youth, skill in bodily exercise, and skill in the mechanical arts. Dr. Reid is of opinion, that beauty originally dwells in the moral and intellectual perfections of mind, and in its active powers, and that from this, as from this, all the beauty which we perceive in the visible world is derived. This was the opinion of the ancient philosophers above named; and it has been adopted by lord Shaftsbury and Dr. Akenhead among the moderns.

"Mind, mind alone! be witness, earth and heaven,
The living fountains in itself contains
Of beauties and sublimes. Here, hand in hand,
Sit paramount the graces. Here, enthron'd,
Celestial Venus, with divinest airs,
Invites the soul to never-failing joy."

AENSIDE.

But neither mind, nor any one of its qualities or powers, is an immediate object of perception to man. These are perceived through the medium of material objects, on which their signatures are impressed. The signs of these qualities are immediately perceived by the senses, and by them reflected to the understanding: and we are apt to attribute to the sign the beauty which is properly and originally in the thing signified. Thus, the Invisible Creator hath ramped on his works signatures of his divine wisdom, power, and benignity, which are visible to all men. The works of men in science, in the arts of table, and in the mechanical arts, bear the signatures of those qualities of mind, which were employed in their production. Their external behaviour or conduct in life expresses the good or bad qualities of their minds. In every species of animals we perceive by visible signs their infinites, appetites, affections, or capacity; and even in the inanimate objects there are many things analogous to the qualities of mind; so that there is hardly any thing belonging to mind, which may not be represented by images taken from the objects of sense; and, on the other hand, every object of sense is beautiful, by borrowing attention from attributes of the mind. Thus, the beauties of mind, though invisible in themselves, are perceived in the objects of sense, on which thus beauty is impressed. Thus also, in those qualities of sensible objects to which we ascribe beauty, we derive in them some relation to mind, and the greatest in those that are most beautiful. The qualities of inanimate matter, in which we perceive beauty, are found, colour, form, and motion: the first being an object of sight; and the other three of light. These several qualities are particularly illustrated by Dr. Reid, with a view of evincing the beauty that respectively belongs to them. Every beauty in the vegetable creation, of which we form any rational judgment, expresses some perfection in the object, or some of the contrivance in the author. In the animal kingdom we perceive superior beauties, resulting from life, sense, activity, various instincts and affections, and in many cases, great facility; which are attributes of mind, and polish an original beauty. In their manner of life we observe, that they push their powers, outward form, and inward structure, exactly adapted to it;
and the more perfectly any individual is fitted for its end and manner of life, the greater is its beauty. But of all the objects of sense, the most striking and attractive beauty is perceived in the human species, and particularly in the fair sex.

In the following well-known passage of Milton, this great poet derives the beauty of the first pair in paradise from those expressions of moral and intellectual qualities, which appeared in their outward form and demeanour.

"Two of far nobler shape, erect and tall, Godlike erect! with native honour clad, In naked majesty, seem'd lords of all, And worthy seem'd, for in their looks divine, The image of their glorious Maker, home Truth, wisdom, patience severe, and pure: Severe, but in true filial freedom plac'd, Whence true authority in man; though both Not equal, as their sex not equal seem'd; For contemplation he, and valour form'd, For softness the, and sweet attractive grace."

The author of "Crito," or "A Dialogue on Beauty," and his reference to the human species, and particularly to the female sex, ascribed to the author of "Polymetis," and republished by Dodgley, in his collection of "Fugitive Pieces," reduces this species of beauty to the four heads of colour, form, expression, and grace: the two former of which may be called the body, and the latter, the soul of beauty. As for the beauty of colour, if we allow for associations and predispositions arising from difference of climate and peculiarity of constitution, that have great influence on the internal sense, as well as on those senses that are external, and consequent on the judgment, it seems to depend, according to the common estimate of mankind, on that quality, as it expresses perfect health and liveliness, and in the fair sex, softness and delicacy; nor can anything be called deformity but what indicates disease and decline. The beauty of colour, therefore, is derived from the perfection which it expresses. "Venus et pulchritudo corporis fecerni non potest valutinum," Cicero. The most beautiful form or proportion of parts, according to this author, is that which indicates delicacy and softness in the fair sex; and in the male, either strength or agility; so that the beauty of form lies altogether in expression. With regard to expression, he observes, that this has greater power than either colour or form; and that it is only the expression of the tender and kind passions that gives beauty; that all the cruel and unkind ones add to deformity; and that, on their account, good nature may very properly be said to be the best feature, even in the finest face. Modesty, sensibility, and sweetness, blended together, so as either to enliven or correct each other, give almost as much attraction as the passions are capable of adding to a very pretty face. It is owing to this force of pleasingness, which attends all the kinder passions, says this author, that lovers not only feel, but really are, more beautiful to each other than to the rest of the world; and in their mutual presence and intercourse there is, as a French writer has well expressed it, a fond upon their countenances, which does not appear when they are absent from one another, or even in company that lays a restraint upon their features. The last and noblest part of beauty is grace, which this author thinks to be incapable of an accurate definition (see Grace). All the ingredients of beauty, enumerated and described by this ingenious author, terminate in expression: they express either some perfection of the body, as a part of the man, and an infringement of the mind, or some amiable quality or attribute of the mind itself.

Dr. Blair (Lectures, vol. i. p. 161 &c.), in his enumeration of the separate principles of beauty, in each of those classes of objects, which most remarkably exhibit it, begins with colour, as affording the simplest instance of beauty. With respect to this he observes, that neither variety, nor uniformity, nor any other principle which he knows, can be assigned as the foundation of beauty; and that it can be referred to no other cause but the structure of the eye, which determines us to receive certain modifications of the rays of light with more pleasure than others. As this organ varies in different persons, they have their different respective favourite colours. In some faces, he thinks it probable, that affection of ideas has influence on the pleasure which we receive from colour. Green, for instance, may appear more beautiful, by being connected in our ideas with rural prospects and scenes; white, with innocence; blue, with the serenity of the sky. Independently of such affections, those colours, chosen for beauty, are, generally, delicate, rather than glaring. Figure opens to us forms of beauty more complex and diversified. Under this head, regularity is first noticed as a source of beauty. Thus a circle, a square, a triangle, or a hexagon, pleases the eye, by their regularity, as beautiful figures. But regularity is not the sole, or the chief foundation of beauty, in figures. On the contrary, a certain variety of regularities is found to be a much more powerful principle of beauty. Regularity, according to this author, expresses beauty chiefly, if not solely, on account of its suggesting the idea of fitness, propriety, and use, which have always a greater connection with orderly and proportioned forms, than with those which appear not constructed according to any certain rule. Nature, the most graceful artist, hath, in all her ornamental works, pursued variety with an apparent neglect of regularity. Mr. Hogarth, in his "Analysis of Beauty," published about the year 1753, enumerates, as elements of beauty, fitness, variety, uniformity, simplicity, intricacy, and quantity; and he observes, that figures bounded by curve lines are, in general, more beautiful than those bounded by straight lines and angles. The beauty of figure principally depends, in his opinion, upon two lines which he has selected. One of them is the "waving line," somewhat in the form of the letter S: and this he calls the "line of beauty," which is found in shells, flowers, and such other ornamental works of nature, and is also common in the figures designed by painters and sculptors for the purpose of decoration. The other line, which he calls the "line of grace," is the former waving curve, twisted round some solid body, and exhibited in twisted pillars and twisted horns, and in the curling worm of a common jack. Variety plainly appears, in the instances which he mentions, to be the material principle of beauty, that he defines the art of drawing pleasing forms to be the art of varying well; and, according to him, the curve line, which is so much the favourite of painters, derives its chief advantage from its perpetual bending and variation from the stiff regularity of the straight line. Motion, says Dr. Blair, furnishes another source of beauty, distinct from figure; being of itself pleasing, so that bodies in motion are, "ceteris paribus," preferred to those at rest. But the quality of beautiful belongs to gentle motion, such as that of a bird gliding through the air, and that of a smooth running stream. In general, motion in a straight line is least beautiful than that in an undulating direction; and motion upwards is also commonly more agreeable than motion downwards. The only pleasing motion of flame and smoke is an object irregularly pleasing, and exhibits an instance of Mr. Hogarth's waving line of beauty. This artiff observes, that, as all the common and necessary motions for the business of life are performed in straight or plain lines, all the graceful and ornamental movements are made in waving lines. Dr. Beattie, in his "Dissertation Moral and Critical," has introduced, in his digression on beauty, some ingenious remarks on this subject. After observing that custom has a perpetual influence in determining
determining our notions of beauty, he proceeds to prove, that
tales allusions founded on habit, many, or perhaps most of
table pleasing emotions are derived, which accompany the
perception of what in things visible is called beauty. With
regard to the beauty or awkwardness of motion, he observes,
that the one will be found to please, and the other to dis-
please, claims an account of certain disagreeable ideas suggest-
ved by the former, and of certain disagreeable ones associated
with the latter. Motions, that imply ease, with such an
arrangement and proportion of parts in the moving object, as
may give reason to expect its continuance without injury,
are generally pleasing, at least in animals, especially when
they betoken a sort of perfection suited to the nature of the
animal. But motions, that betray inhumanity, unkindness,
impertinence, or the appearance of danger, cannot be called
beautiful, because they convey unpleasant ideas. These ob-
servations are illustrated by a variety of apposite instances. Ci-
cero (De Off. b. III. § 36.) blames every motion that alters the
contour, quickens the breath, or betrays any discompo-
sure. Routund observe, that in running, a woman is defi-
citute of that grace which attends her on other occasions.
Perhaps, says Beattie, the jutting out of her elbows, the
natural effect of her endeavouring with lifted hands to face
the most delicate part of the human frame, may give to her
motion the appearance of timidity and constraint. Or, per-
haps, she may fall in this exercise, merely because, according
to us masters, she can be no much accustomed to it. See
Dancing.

It is not easy to convey, in so few words, so many charm-
ing ideas of beauty, in its several varieties of colour, shape,
attitude, and motion, as Gray has combined in the follow-
ing image:

"Slow melting streams their queen's approach declare;
Where'er she turns the graces homage pay:
With arms sublime that float upon the air,
In gliding flight the wins her easy way:
O'er her warm cheek, and rising bosom more
The bloom of young desire, and purple light of love."

But to return from this digression. Dr. Blair observes, that
though colour, figure, and motion be separate principles of
beauty; yet many beautiful objects they all meet, and render
the beauty both greater, and more complex. Thus, in flowers,
trees, and animals, we are entertained at once with the delicacy
of the colour, with the gracefulness of figure, and sometimes
also with the motion of the object. Perhaps, the most com-
plete assemblage of beautiful objects is presented by a rich
natural landscape, composed of a sufficient variety of objects;
fields in verdure, scattered trees and flowers, running water,
animals grazing; to which may be added some productions
of art, which but such a scene, as a bridge with arches over
a river, smoke rising from cottages in the middle of trees, and
the distant view of a fine building, seen by the rising sun.

The beauty of the human countenance is more complex
than any that has yet been considered. It includes the
beauty of colour, arising from the delicate shades of the com-
plexion; and the beauty of figure, arising from the lines
which form the different features of the face. But its chief
beauty depends upon a mysterious expression which it con-
veys of the qualities of the mind; of good sense, or good
humour; of shyness, candour, benevolence, flexibleness,
or other amiable dispositions.

Another distinct species of beauty arises from design or
art, or from the perception of means being adapted to an
end; or the parts of any thing being well fitted to answer
the design of the whole. This is altogether different from the
perception of beauty produced by colour, figure, variety,
or any of the causes already mentioned. This kind of beauty
in arts and design, has an extensive influence over many
of our ideas. It is the foundation of the beauty which we
discover in the proportion of doors, windows, arches, pillars,
and all the orders of architecture. We shall here observe,
that Mr. Pernaut distinguishes two kinds of beauty in archi-
tecture. The one he calls "positive," and "commentary,"
such as the richness of the materials; grandeur of the struc-
ture, neatness of the workmanship, symmetry, &c.; the other
he calls "arbitrary," which depends on the will, and which
would admit of having their proportions changed without
defority. These only pleae by the connection or associa-
tion of their ideas with others of a different kind, which
please of themselves: they owe their beauty to that pro-
position of the mind, by which a thing, whose value we do
know, infames an esteem for others which we do not know.
Thus, he observes, there are many things in architecture,
which reason and good sense would judge deformed, which,
however, custom has not only made tolerable, but even
beautiful, by their being always joined with other beauties
that are positive. Being at first pleased with viewing them
in company, and merely on that account, we at length become
pleased with them alone; and thus we frequently become
fond of faults, and fall in love with deformity. Our tenue
of fineness and design holds to a high rank among our percep-
tions as to regulate, in a great degree, our other ideas of
beauty. In an epic poem, a history, an oration, or any
work of genius, we always require, as in other works, a fit-
ness, or adjustment of means, to the end which the author
is supposed to have in view.

Beauty, as it is applied to writing or discourse, denotes
tall that pleases, either in style or sentiment, from whatever
principle that pleasure flows; and a beautiful poem or ora-
tion means, in common language, no other than a good one,
or one well composed. Beauty, besides this indefinite fene
of it, is also used to signify a certain grace and amenity in
the turn either of style or sentiment, for which some authors
have been peculiarly distinguished. In this sense it denotes
a manner neither remarkably sublime, nor vehemently
passionate, nor uncommonly sparkling; but such as excites
in the reader an emotion of the gentle placid kind, similar
to what is excited by the contemplation of beautiful objects
in nature, which diffusse over the imagination an agreeable
and pleasing serenity. Addison was eminently a writer of this
character; and it belongs also to Fucelon, the author of the
Adventures of Telemachus. Virgil, among the ancients, is
distinguished, in his general manner, by beauty and grace,
rather than sublimity. Among orators, Cicero has more of
the beautiful than Democritus; whose genius led him wholly
towards sublimity and strength.

The ingenious Mr. Burke, in his "Philosophical Inquiry
into the Origin of our Ideas of the Sublime and Beautiful,"
excludes from the number of real causses of beauty, the pro-
portion of parts, sizes, or that idea of utility which consists
in a part, being well adapted to answer its end, and alto
perfection; and he observes (p. 210.) that beauty is, for
the greater part, some quality in bodies, acting mechanically
upon the human mind by the intervention of the senses. The
quality of beauty, as they are merely sensible qualities
which he enumerates, are the following: they should be
comparatively small, in both, various in the direction of their
constituent parts; their parts should not be unequal, but
mixed, as it were, into each other; they should be of a deli-
cate frame, without any remarkable appearance of strength;
the colours should be clear and bright, but not very strong
and glaring; and any glaring colour that is introduced should
could be divested with others. The few properties
upon which, according to this author, beauty depends; prop-
erties that operate by nature, and are liable to be al-
tended by caprice, or confused by a diversity of tales, than
those. The philosophy also, says Mr. Burke, have
considerable share in beauty, especially in that of our own
species.
The magnanimous The consequence few certain fimplicity jullly order nearer and influence, which stood), common and AUifon wlvich beauty," kind parts sculpturere. Socrates declares, that good and evil qualities of the soul may be represented in the figures of man by painting. Plato, in his dialogues, reasons to the fame purpoze, and declares, that the good and beautiful are one.

Aristotle (De Mor. l. iv. c. 7. t. iii. p. 49. De Pot. c. 7. t. ii. p. 658.) observes, that beauty is order in grandeur. Order furnishes symmetry, fitness, and harmony; and in grandeur are comprized simplicity, unity, and majesty. However, in his catalogue of virtues and their families, as well as of the opposite vices and their families, Aristotle concurs with Plato in acknowledging the relation between beauty and good- nefs, evil and deformity. Indeed, it has been one of the great objects of philosophy, through all the ancient schools, to trace and demonstrate not only the likenefs but the identity of beauty and goodnefs. Among the Platonists and the Pythagoreans, malignity was abandoned, goodnefs or the jull, and intellect or wisdom cultivated, because by this means, man is elevated to a nearer approach to the divinity. Fortitude and temperance were the virtues of the floecs and early epicureans, because the one radies man above common fears and wants, and the other gives him better health and enjoyment of his faculties. These conclusions are convincing, and their illuftrations may be drawn in great abundance from

B E A U T Y.

The manners give a certain determination to the countenance, which being observed to correspond pretty regularly with them, is capable of joining the effects of certain agreeable qualities of the mind to those of the body. So that to form a finished human beauty, and to give it its full influence, the face must be expressive of such gentle and amiable qualities as correspond with the folluces, smoothness, and delicacy of the outward form. For Mr. Burke's mode of illustrating and confirming his theory of beauty, the reader is referred to his work above cited.

Dr. Sayers, in his "Disquisitions, metaphysical and literary," 1792, has given a new analysis of beauty, conducted on the principles which were applied by Dr. Priestley in his "Lectures on Oratory and Criticism," and by Mr. Allison in his "Effays on Taste," to the explanation of the intellectual pleasures, namely, the doctrines of the Hartleyan school. His argument, summed up in a few words, is as follows: that individual of a class of objects is justly to be esteemed more beautiful than the rest, with the whole of which, or with its component parts (when properly understood), the greater number of the excellencies of its class are universally associated. The same may be affected of any species of objects, when compared with any other species of its kind; and that object may be justly esteemed a "standard of beauty," with the whole appearance, or with the component parts of which (when properly understood), all the excellencies of its kind are "universally" associated.

Beauty, in the Arts of Design. Whatever of beauty or perfection becomes an object of contemplation to our minds, whether it be purely mental or perceived through the medium of our senses, must be derived from the beautiful and perfect itself, and may be traced back towards its Divine source. However diversified, it proceeds from this source, and directs us where to seek the principles and perfection of all science and art, of all things metaphysical, physical, and moral, which by their mutual connection and harmony declare their common relation and origin; therefore what is called beauty in the arts of painting and sculpture must be sought for in its principles, metaphysical, physical, and moral. In this research we should do well to take those philosophers for our guides, who were the oracles of Greece, in the times when painting and sculpture attained their highest excellence. In the dialogue between Socrates and the sculptor Clito (Xenophon's Memorabilia,) Socrates concludes that "that statuary must represent the actions of the soul by form." And in the former part of the same dialogue Parrhasios and Socrates agree, that the good and evil qualities of the soul may be represented in the figures of man by painting. Plato, in his dialogues, reasons to the fame purpoze, and declares, that the good and beautiful are one.
BEAUTY.

design, we shall produce illustrations from the antique sculpture and painting. — The ancients adorned the hill clads of beauty to the superior deities, the legends to heroes, and the third to faws. Other divinities and genii seem to have partaken more or less of these clays. Mere portraits cannot be enumerated in either, because they are but faithful representations of ordinary nature. Of the superior gods, the Saturnian family possess the rank of beauty in the and the beautiful. In the base head of Jupiter lately in the pope's museum, now with the original gilding at Paris, the hair yields from the forehead, and descends in abundant locks on each side of his face and neck to the shoulders; his forehead is muscular, expressive of greatstrength; his nose and cheeks are correspondent; his eyes and mouth express benevolence; his wife and famous brow, his pliant countenance, and full beard, inspire reverence and awe. This is the might of the superior gods. His right arm modestly raised with his thunderbolt, or leaning on his sceptre, presents the habitual act of governing the universe. Winkelman has judiciously remarked, that the Greek sculptors preferred the family resemblance in the Satyria race, with as much exactness as if they had been real portraits; they bore Jupiter's brothers strongly partake of the same character, excepting that Neptune's countenance is more fierce and his hair more dishevelled. Pluto's hair hanging over his forehead gives a gloomy cast to his countenance, which is increased by his more open and startling eyes. Winkelman has observed, that something of the lion may be traced in the nose, forehead, and hair of Jupiter, which adds might and magnanimity to the benevolence, wisdom, and awful majesty of his character. In the youthful beauty of Apollo, Bacchus, and Mercury, the same benevolence and wisdom are expressed, modified by their peculiar characteristics and offices. Apollo is light and strong in his make; Bacchus is more soft and luxurious, and Mercury more athletic. The peculiarity of Hercules is magnanimity and unconquerable strength. The heroes have a more limble character throughout, approaching nearer to common nature. The fauns may be placed in the lowest class of beauty expressed in the human figure. Although their persons are youthful, and rather handsome, their proportions are shorter than those of the clays above-mentioned; and sometimes their muscles are turgid and tendinous, accommodated to their sylvan habits and activity; their rounded faces have a portion of rude gross nature; but their parted eyes-brows, eyes placed diagonally to the nose, small hollowed nose, and grinning mouths, express some mixture of savage, ferocious, and ridiculous dispositions. The most engaging and captivating species of beauty exists in the female sex; and was represented in perfection by the Greeks in their superior clays of statues. The large eye and full under lip of Juno, give an air of haughtiness to her countenance; her limbs are round and her figure is majestic. Minerva's figure partakes of Juno's majesty; but her face is not so full, and has an expression of abridged wisdom. Venus is represented as a symbol of female charms; her form is diaphanous, perfect, and exact in the highest degree; her mouth is graceful, and her countenance expressive of love and favours.

The soft and beautiful hands of antiquity are oval in the front view; in profile, the low forehead and nose forms nearly one straight line; the lips are rather full and the chin rounded. Juno has the largest eye of the goddesses, according to Homer's epithet of "O-eye'd," the nose is round like a column; the mouth is high and extended; in the male subject the abdomen is flat; and, as Winkelman remarks, "Such is the appearance of a sleep and gorged digestion; the arms, delicate from full shoulders, are taped downwardly to the waist with a very gentle flattened hollow towards the inner elbow, to distinguish the bend of the arm; the back of the hand is one mass; the fingers rather long and tapered, with knuckles indicated in a manner almost imperceptible; the lower limb tapers more sensibly than the arm, because the thigh is larger in its commencement; the knee-pan in youthful statues is nearly oval; and the inner side of the tibia, or principal bone of the leg, is perceptibly marked by a curve of about 30 degrees; the great toe is large, and divided by a considerable space from the lesser toes, which are straight, and not bent over each other like such as have been Edition in fuses.

In the female form, the limbs are more round and delicate; the knuckles of the hand and foot are expressed by flight dimples; the fingers are more tapered; and their outline determined by a long curve, a little reversed towards the end. The principal difference of relative proportions is, that the female figure should be about one face shorter than the male; each having eight heads in height. The female figure is also narrower in the shoulders and hips, and somewhat broader from the os pubis to the extremities of the nates. The Greeks represented the godesses with virgin bosoms. Winkelman, in his "Monumenti Idbiti," has treated largely on the beauty of the antique statues. Prosector Camper, in his "Principles of Design," has also given excellent observations and rules on the beauty and proportions of the human head and figure, absolute as well as comparative. For his account of beauty, as exhibited in ancient sculpture and engravings, see his treatise, entitled "Verhandeling over het natuurlyk verbijlder wezenstrieken," &c. or, on the natural difference of features in persons of various countries and ages, published by his son, at Utrecht, 1792, 4to. In his dissertation on the beauty of forms, subjoined to his "Lectures," published by his son at the same place and in the same year, entitled "Roden Vooeringen," &c. it is his object to prove, that no particular form can, abstrusely considered, constitute beauty; that the real basis of beauty confides in the means being adapted to the end; and that, exclusively of this, our ideas are influenced by customs, national prejudices, implicit confidence in the taste and opinions of others, &c.

Proportion is an essential quality of beauty in the human form; and the coincidences are afforded in its relation to perfect geometrical figures, and the harmony of sounds and numbers. A man, standing upright, can stretch out his arms to a length equal to his height; consequently his figure may be included in a square; by stretching the arms not so much, and the legs a little, the figure may be contained in a circle, whose centre is the top of the os pubis. The ancients divided the height of the human figure into eight heads, and the face into three parts; five of these parts are the breadth of the hands; three parts, or noes, measure the upper part of the thigh; two, the calf of the leg, and one, the ankle. A well proportioned figure measures their equal parts from the top of the shoulder to the tip of the index next the rectus abdominis; from the top to the bottom of the knee-pan; and from the latter to the bottom of the ankle.

The term grace, as a quality of beauty, however it may have puzzled the moderns in its definition and application, was clearly understood by the ancients. The graces or graces of the Romans were the charity of the Greeks. VAPs, is grace, beauty, fairness, endearing, agreeable, eligible; and the graces, gentle &c. are connectives which denote beauty and connivance. The graces are three beautiful fifters, whose influence is their only grace, embracing each other in the gentle manner. The Greek Christians have preferred the ancient signification of this word in its application to all those endearing duties which presage happiness to, and follow it on others; nor is it surprising, that these characteristics are given to women, because all the milder and endearing virtues are full more amiable.
B E A

amiable in the female sex. If by grace, the succession and
variation of undulating lines be intended, it is seen most per-
fently in an elegant female figure moving slowly. It is remark-
able, that man, of all creatures, presents the most perfect view
of his figure in front. Quadrupeds, birds, and fishes, are best
seen in profile, and we look on the backs of reptiles and in-
sects. It is necessary, to the most advantageous appearance
of man, that we should contemplate the affections of his
heart, and operations of his reason continually beaming in his
countenance; the waving lines of his body, moving on
the centre of gravity, and varied curves and angles formed
by his limbs, perfect the whole of his figure, with an union
of faculties mental and bodily, which reminds us that "God
created Man in his own Image."

The various heads touched upon in the latter part of this
article, will be treated of in the several articles of Painting
and Sculpture.

We cannot forbear subjoining the reflection with which Mr.
Thomson, (a late writer on the subject of beauty) cloths his
detail of the various beauties of the female form. "If we
should see a person employ himself with a sledge hammer to
dash the enchanting form of the Venus de Medici to pieces,
break her lovely limbs, and deface her beautiful features, we
should not hesitate a moment to pronounce him a savage
barbarian, without taste, feeling, or sentiment, though his
frenzy was employed only on a faceless piece of stone; what
then must we think of the diabolical savage, who exercises
the world of all creatures (because the most laiting and affec-
ting both to body and mind,) on the most beautiful and
amiable of all creatures on this side heaven?—made ex-
pressly for his happiness, solace, and delight, by first cor-
rupting and betraying her, and then basely abandoning her
to perish with want, pain, wretchedness, and misery."
The sentiments of mankind, with regard to female beauty,
have been very various in different ages and nations; and it
is not possible to establish a standard which shall compre-
prehend all, without discrimination; among the ancients, a
small forehead and joined eye-brows were charming features
in a female countenance; and, in Paria, large joined eye-
brows are highly esteemed. In some Indian countries,
black teeth and white hair are necessary ingredients in the
character of a beauty; and in the Marian Islands, it is a
capital object with ladies to blacken their teeth with herbs,
and to bleach their hair with certain liquors. Beauty, in
China and Japan, is composed of a large countenance,
small, and half-concealed eyes, a broad nose, minute feet,
and a prominent belly. Some Indians of America and
Asia, compells the heads of their children between two
wooden planks, with a view to enlarge and beautify the
face; others compells them laterally, others depres the
commonly, and others make the head as round as possible.
Every nation has ideas of beauty peculiar to itself; and
almost every individual has its own notions and taste con-
cerning this quality. The empire of beauty, however,
amidst these discordant ideas, with respect to the qualities
in which it consists, has been very generally acknowledged,
and particularly in all civilized countries; and when it is
united with other accomplishments that tend to render
females amiable, it contributes in no small degree to give
tem importance and influence, to polish the manners of
society, and to contribute to its order and happiness.

BEAUVIS, BELLVOCAM, and CESARONABUS, in
Geography, a city of France, and capital of the
canton of the Ofte, seated on the Therin; and, before the revolu-
tion, the capital of the Beauphais, and the see of a bishop.
The architecture of the cathedral has been much admired,
besides which it has several collegiate and paroch churches.
The manufacture of the city is a beautiful tapestry, which
has supplied a considerable branch of trade. It has also
produced great quantities of serge and woollen cloth. This
city was unsuccessfully besieged by the English in 1443
and by the duke of Burgundy in 1472, at the head of
80,000 men. On the latter occasion, the women displayed
singular courage under the conduct of Jane de Hatchett,
whose portrait is preferred in the town house; and in com-
memoration of their brave defence, the women form the first
rank of a procession, observed annually on the 10th of July.
This place contains in its N. E. and S. E. districts 13,000,
and in its two cantons 10,350 inhabitants, on a territory of
224 kilometres. Its N. E. canton includes 7 and its S. E.
canton has 4 communes. N. lat. 49° 26'. E. long. 2° 13'.

BEAUVAIS, a small fertile district of France, bor-
dered on the north by Picardy, on the west by Vexin-Nor-
mand, on the south by Vexin-François, and on the east by
Senlis; now forming a part of the department of Oise. See
BEAUV.

BEAUVAIS, a town of France, in the department of the
Somme, and chief place of a canton, in the district of
Douains, one league S. of Douains.

BEAUVÉR, a little town of France, in the district
called, before the revolution, Antuoin, in the department of
the S. of the Loire, seated on the point of a mountain,
and supposed by some to be the ancient Bibracte.

BEAUVILLE, a town of France, in the department of
the Lot et Garonne, and chief place of a canton, in the
district of Agen, 3 leagues N. of Valence.
The place contains 1794, and the canton 7672 inhabitants;
The territory includes 122½ kilometres and 11 communes.
N. lat. 44° 17'. E. long. 0° 47'.

BEAUVOR, a town of France, in the department of
Vendée, a chief place of a canton, in the district of
Les Sables d'Olonne; the place contains 1892 and the canton
8537 inhabitants; the territory includes 230 kilometres and
5 communes.—Also, a town of France, in the department of
the Iere, and district of St. Maurein, 5 leagues S. W.
of Grenoble.

BEAUVOR, S. of Niort, a town of France, in the depart-
ment of the two Sevres, and chief place of a canton, in the
district of Niort, 2½ leagues S. of Niort. The place
contains 301 and the canton 5133 inhabitants; the territory
includes 157½ kilometres and 13 communes.

BEAUVOS, Pont de, a town of France, in the
department of the Iere, and chief place of a canton, in the
district of La Tour du Pin, on the borders of Savoy, 11 miles
W. of Chambery. It is seated on the small river Guier le
Vif, which runs through it, and divides it into two parts.

BEAUZAT, a town of France, in the department of
the Rhone and Loire, 1½ league S.W. of Mountril.

BEAUZE, a town of France, in the department of
the Meuse, and chief place of a canton, in the district of
Verdun, 4½ leagues S.S.W. of Verdun.

BEAUZIEL DE LEVOU, St., a town of France,
in the department of Aisne, and chief place of a canton,
in the district of Millau, 2 leagues N.W. of Millau.

EBE', a large village of Egypt, on the west side of
the Nile, distant about 3 leagues from Beniout; the residence
of a knife, and the site of a mosque, and a convent of
Copts.

EBELINGEN, a town of Germany, in the district of
Wurttemberg, seated on a lake from which proceeds the
river Wonn. N. lat. 48° 25'. E. long. 9° 8'.

EBENHAEUS, a convent in the district of Wurt-
temberg, called Schonlack, at a small distance N.E. of
Tubingen; the manor of which contains 9 parishes.
In this convent is an academy, where students are qualified
for admission into the seminary at Tubingen.

EBBENOWA, a town of Poland, in the palatinate of
Breslaw, 14 miles S.E. of Breslaw.

EBERACI, in Ancient Geography, Katzenich, a lake of
Miciop-
Monopoptamia, between mount Singara, and the river Chaboras.

BEBRE, in Geography, a river of France, which runs into the Loire, opposite to Bourbon Lancy.

BEBCYES, in Ancient Geography, the first inhabitants of Bathyria. The origin of their name, and the reason of their being expelled, is uncertain. A people of this appellation, mentioned by Silvius Italicus, in his 'Eclogae,' inhabited that part of Gália Narbonensia, which was situated between Spain and the Alps, or near the Pyrenees, and from them they called themselves Buerci. 

BEC, in Geography, a town of France, in the department of the Loire, 9 leagues W.S.W. of Rome. 

BEC CREVIN, a town of France, in the department of the Lower Seine, 3 leagues east from Havre.

BECABUNG, BROOK, in Britain. See Verona.

BECALI, or BERARDI, a Jewish coin, being half a shilling. In Dr. Arithmetick's table of reductions, the shilling amounts to 17.44; in Dr. Prideaux's computation to 16.6d.

Every drachma paid a hundred bucks a head every year for the support of the temple. Calumet.

BECALMING, in the Sea Language, is when any thing keeps the wind off or away from the vessel.

This one ship is said to be calmed another, when the comes up with her on the weather-side: this is the like said of the shore, when it keeps the wind away. A ship is likewise said to be calmed, when there is no wind luring.

BECANER, in Geography, a town of Hindustan, seated on the Ganges, nearly east of Delhi.

BECARDE, in Ornithology, a name under which Buffon describes some birds of the Linnaean genus LINNUS: as for example, his becares is linus cyanus, Gmel, and becades is centaurus, a small blue bird of the same author.

BECASSE, Bécassine, a general term in Buffon's Nat. Hist. for some of the birds of the Scolopax genus, in the Linnaean system.

BECASSEAU ou COL-BLANC, is also a name given by Buffon to the iberus communis of Linnaeus.

BECCA, in the Materia Medica of the Ancients, a name given to a fine kind of rein collected from the turpentine and mastic-trees of Greece and Syria, and mixed together for use. It was much esteemed formerly, and not only used in the country where it was produced, but carried in great quantities to Mecca, and other parts of the Turkish dominions, where it was valued at a very great rate.

BECABUNGE, in Entomology, a species of Curculio, of a black colour, wing-cases rusius; entirely bordered with black. Fabricius. In Fine and appearance it resembles curculio rubri, but it inhabits Sweden, feeds on the beeches.

BECADELLI, ANDRÉ, in Biography, called Antonio of Palermo, from the place of his birth; was born in 1374, studied the law at Bologna, and entered into the service of the duke of Milan, who allowed him an honourable pension. He also became professor of belles lettres and rhetoric in the university of Pavia, and, in 1432, was honored by the emperor Sigismund, with the poetical laurel. When Alphonso king of Naples left Milan in 1435, he took Antonio with him to his court; and from this time, he became the inseparable companion of this prince, who conferred upon him many honours and gifts, and intrusted him with many important commissions. In 1451 he was appointed to the see of Venice, the papal archbishop of the historic Lide, which he obtained. Such indeed was his veneration for Lide, that he is said to have sold a farm in order to purchase a copy of this city, written by the hand of Pliny the Florentine. After the death of Alphonso, Antonio became the secretary and confidant of his son and successor Ferdinand. He died at Naples in 1451: leaving behind him ample testimonial of his talents as a Latin writer, both in prose and verse. For his work on geography, he received the recompence of a thousand gold crowns; which work has been frequently reprinted, with additions. A collection of five books of his epistles, two harangues, and some verses, was printed at Venice in 1453. His 'Historiophorus,' which was a collection of short poems in two books, excited by its obliqueness loud clamours against its author; and was publicly burnt in several cities of Italy, together with the writer's own effigy. Gen. Biog.

BECADELLI, LUDOVICO, was born of a noble family at Bologna in 1502, studied at Padua, and accompanied cardinal Pole in his legation to Spain. He assisted at the council of Trent, and was delegated by the papal court to Venice and Augsburg. In recompense of his services, he was promoted to the archbishopric of Ragusa; but being appointed in 1505 to superintend the education of the son of Cosimo I., grand duke of Tuscany, and expecting the archbishopric of Fisa, he renounced that of Ragusa. His expectations, however, were disappointed; and he was obliged to content himself with the provostship of the cathedral of Prato, in which office he died in 1572. He was reckoned eminent as a man of letters, and wrote in Latin the lives of the cardinals Bonaro and Pole, and in Italian a life of Petrarch, esteemed more correct than any other. Nouv. Dict. Itui.

BECAFICO CANAPI, in Ornithology, a name of matucina curvica, in Oliva.

BECAFICO and BECOA, are also names given by Oliva and Buffon to matucina fuscata. Linnaeus.

BECAFUMI, DOMENICO, in Biography, called Micaronius and Medoverus, was the son of a peasant near Siena, whose name was Piacio, born in 1484, and employed by his father in keeping sheep. Becafumi, a citizen of Siena, whose name he assumed, being preposessed with a favourable opinion of his talents by observing figures which he drew, with his stick upon the sand, whilst he was surrounded by his flock, took him under his patronage, and placed him under the instruction of a painter, called Cavana; and after having been, as some say, the disciple of Pietro Perugino, or according to others, after having been employed in copying the pictures of this artist, he went to Rome, and made further improvement by studying the works of Raphael and Michael Angelo. After two years he returned to Siena, and finished several pieces, not only in oil, but in charcoal and fresco, which gained him great reputation. But he was chiefly admired for his performance on the pavement of the great church, which he wrought by combining stones of different colours, with pitch poured in holes for the dark shades, in such a manner as the light and shadow of the object required. This kind of performance is said to have been invented by one Duccio of Siena in 1356; but it was brought to perfection by Becafumi. He had a fine invention; his style was elegant; his expression good; and his colouring beautiful. He was also an excellent engraver on wood and metal, and also a founder. His usual mark on his plates is a B divided in the middle by a horizontal line. This artist died at Genoa in 1549. Pickington and Strutt.

BECARRA, CESAR DOMIANA, marquis of, an eminent Italian writer, was born about the year 1720. To the study of philosophy he was attached from his infancy, and he acquired himself either in the schools of the light and intellectual freedom, which his native country, Italy, afforded him, or in the schools of France, England, and other countries. At Naples Grossetti taught the Italians how to think, and Becarras distinguished himself by the title of "his learned and venerable master." At Milan also Count Firmian was a distinguished patron of literature and science, and a promoter of every reform, that had philanthropy for its basis. With such enlightened men Becarras co-operated by writing in 1767...
his famous work, "On Crimes and Punishments," which had an extensive spread, and produced a great change in the prevailing ideas on these subjects. Voltaire, in his commentaries on this work, says, that this short treatise is in morals what a simple drug would be in medicine, which should be adequate to the cure of every disease to which the human body is liable. As the principles of government indirectly supported in this work were hostile to absolute power, they incurred the charge of subverting the legitimate sources of authority; and the marquis owed his protection to the influence of count Ferman. Having escaped the danger that threatened him, he diverted his attention from speculations of this nature to metaphysical subjects. Besides fome papers, contributed to a periodical work, entitled "The Coffee-House," he published "Disquisitions on the Nature of Style," maintaining that by nature all men possess an equal degree of genius for poetry and eloquence, and that the observance of proper rules all would be able to write equally well. Boccari was much attached to men of letters, a patron to those who needed encouragement, and a cordial friend. He was charged, however, with vanity in the exercise of an office of magistracy which he held; and hence his enemies compared him to lord Bacon, with respect both to abilities and corruption. He died November 1794. Month Mag. 1798. Gen. Biol.

BECARIA, GIAMBATTISTA, an eminent philosopher of the eighteenth century, and a monk of the Eclesi-Pie, was a native of Mandovio in Piedmont, and became professor of philosophy and mathematics, first at Palermo, and then at Rome. His established reputation occasioned his removal to Turin, where he occupied the chair of experimental philosophy. In consequence of his appointment to the office of preceptor to the princes of Sardinia, he was introduced to the Sardinian court; but neither this employment, nor the honour connected with it, diverted him from the indefatigable prosecution of his studies; and the pecuniary advantages that resulted from the appointment were principally devoted to the increase of his library and the improvement of his philosophical apparatus. Amidst the variety of his philosophical pursuits, his attention was particularly engaged by experiments and investigations in electricity; and in this department of science he acquired singular reputation. For an account of his principal discoveries and observations, see Atmosphere, and Electricity. His chief work on this subject were "Delli Elettrisimo Artifices et Naturali," Turin 1753, 410; of which an English translation was published, in 1776, 410, and "Lettere dell' Elettrisimo," Bologna, 1758, fol. He also published essays "On the cause of Storms and Tempelst," "On the Meridian of Turin," and on other physical and astronomic subjects. Father Boccari, no let's respectable for his virtues than his knowledge, died at Turin in an advanced age, May 22, 1781. Nouv. Dict. Hist.

BECARIA, JAMES BARTHOLOMEW, born at Bononia, in 1682, received the early part of his education among the Jesuits. Turning his mind to the study of natural philosophy, he soon became distinguished for the variety and depth of his knowledge in physics, and in mathematics, of which he was made public professor, and, in conjunction with Morgagni, and other celebrated characters at Bononia, affiliated in forming an academy there for teaching mathematics, natural history, chemistry, anatomy, and medicine. He first gave lectures in natural history, and in 1712, was appointed to the chair of medicine, which he also now practiced with great success. On the death of Vallad, he was made president of the institution, and in that post introduced many useful regulations for the government of the academy, which are still continued. He was a frequent correspondent with the Royal Society of London, of which he was made an honorary member. Among other communications from Boccaria, which appear in the Philosophical Transactions, are his "Observations on the Weather," and on the Ignis Fatuus," and "On the power some persons have enjoyed of supporting life for a great length of time, without food." This was afterwards published at Padua, under the title of "De jeniusa longis Differtatio," fol. 1748. He died Jan. 1766, being 84 years of age. Among his publications are, "Differtatio Meteorologica Medicina, in qua aeriis temperies et morbi Bononie gravaentes annis, 1729, et frequenti, deserviunt," "De vanumirius phlogis et nunc primum detectis, Commentarum," Bonon, 4to. 1744. "Scriptura Medico-legalis," 1749. For the titles of his other compositions, and of numerous unedited pieces, see Gen. Biol. and Hal. Bib. Anat.

BECLES, in Geography, is a market and corporate town of Suffolke, in England, situated on the northern border of that county joining to Norfolk. It is a fifteen miles S.W. of Yarmouth, and 108 N.E. from London. Though not a borough town, Beccles has its corporation, consisting of a portreeve, and sixty-six other persons, who are distinguished by the names of twelve, and twenty-four. From the twelve, the officer called portreeve is annually elected. The town consists of several streets, which concentrate in a spacious area, where the markets are held every Saturday. Here are a large handsome church, whose tower is detached from it, and the ruins of another called Ingate church, which was formerly the parish church. The church-yard, from its elevated situation, commands many fine and extensive views of the adjacent country, and the meandricals of the river Waveney which adjoins this cemetery. Here are a town-hall and gaol; the former is a substantial building, where the quarter sessions are held; and the latter has been lately much enlarged and improved conformably to the Howardian plan. A public grammar school was founded here in 1712, by Dr. Fauconberg, who endowed it with certain lands for the maintenance of a clergyman, and to qualify youth for the university of John Leeman, knight, also founded a free English school in 1631, for the education of forty-eight boys; also for a master and usher, who are appointed by trustees, being part of the corporation. On the north-west side of the town is a very large common field, containing nearly 1600 acres, where the inhabitants are allowed, under certain restrictions, to turn a number of horses and cattle. Beccles suffered by a destructive fire, which happened on the 29th of November, 1586, when more than 50 houses were consumed, with property calculated at $10,000. It is rather a singular circumstance, that neither mail, nor turnpike roads, communicate with this town though it was some time since proposed at a public meeting to carry the turnpike road to Yarmouth through this place; but the proposition was negatived by a considerable majority of the inhabitants. Here are three annual fairs. The number of houses in the township is 607; of inhabitants 2788, of which 1245 are males, and 1543 are females. In the vicinity of this town are the following, besides other gentlemen's seats. Ravesingham Hall, Sir Edmund Bacon, bart.—Langley Park, Sir Thomas Beauchamp Proctor, bart.—Beecar Hall, Sir Thomas Gouch, bart.—Soterley Hall, Miles Bone, etc.

BEC-D'OISEAU, in Zoology, the name lately given by French naturalists to that most singular Australian animal Platyus anatinus of Vivarium nature, and Duck-billed platypus of Dr. Shaw. It is also called Ornithobirhinos paradoxus, by M. Blumenbach of Goettingen. See Platyus.

BECED, LA, in Geography, a small town of France on the Aude, and chief place of a canton, in the district of Castelnaudary, 14 league north of Castelnaudary.

BECF-AAL, in Ichthyology, a French name of the Electrical eel, anguille electrique.

BECHAN, in Geography, a river of North Wales, which
BECHER, John Joachim, in Biography, an industrious and successful cultivator and improver of chemistry, and an ingenious mechanick, was born at Spire in 1645. After passing through the usual preliminary studies, he was made professor of medicine at Mentz, and from an apothecary to the elector, and to the ducal court at Bavaria. Acquiring considerable reputation in the honourable post, he was called to Vienna by the emperor Leopold; where, besides attending to his medical duties, he was instrumental in forming a chamber of commerce, and in improving its manufactures. He is also said to have projected the plan of an East India company there. But getting into disputes with some of the officers about the court, he left his inquisition, and was obliged to leave Vienna. He then went to Mannheim, and was appointed physician. From Wurtzburg he was driven away, Heller, on being detected defacing a human body, with the view probably of producing some chemical experiments on sons of the learned, as he did not cultivate anatomy. At Hanover, where he now resided, he invented a machine for the improvement of gold, and, as he tells us in his "De falso folio, et liberis de auris," written at Frankfort 1662, made some improvement in the art of printing, in what it consisted, is not now known. In the man while he was not unimpartial of the principal object of his studies, the advancement of the knowledge of chemistry, as appears by a rapid succession of publications on that subject. Getting again involved in disputes with some principal persons at Hanover, and compelled to quit that place, he came to London, where he died in 1675. That he was of a turbulent and restless disposition is evident by his frequent migrations, and by his constantly being the favourite and protector of his patrons, whom he had made his debtors by his abilities and services. Becher gave a new turn to chemistry, which he employed in analyzing and finding out the principles of natural bodies, and thence had the foundation of the great improvements that have been made in that art. But he was fond of mysteries, and employed no small part of his time and labour in his attempts to transmute metals. That he thought this practicable, appears by his "Experimentum chymicum novum, quo artificiali et indolente metallum inter generationem et transmutationem integrum et occulam demonstrativum," and his "Thesaurus, virisque et pulchrioribus tarnen transmutationes metallorum in a metae corporis," in which he states he has discovered the art of transmutation, and which he published in 1642. On this subject he published, 1669, a Latin letter, in which he says that he had the full permission from his masters to publish this art, since known under the name of alchemy, he may therefore he considered as the father of Chemistry. (See Chemistry, and Biographies.) His works are his "Phlogiston," "De falso folio," "Philosophia chymica," and "De ratione chemica," which last he published 1669: "Parallela chemica," 1670, in the latter part of the rest of his works, by Eloy's permission.

BECK, Daniel, in Geography, is a lake of Carmania, in the deanery of Cognos. BECK, town of Hanover, in the department of Hanover, and the place of a market, in the district of Châtillon. The place was then by the Emperor in 1691, and 1694. The population is about 2000.

BECKSTADT, a market town of Germany, in the Herrschaft, or county, in the canton of Hanover. The place was then by the Emperor in 1691 and 1694. The population is about 2000.

BECHTER, in Geography, is a town of Bohemia, and capital of a circle of the same name. It is situated on the river Lusatia, and its citadel is on a steep rock. The circle was miserably ravaged and laid waste in the thirty years' war, and in the town was taken and burned by general Bechtor in 1619. N. lat. 49° 14'. E. long. 15° 12'.

BECKTHEIM, a town of France, in the department of Mont-Tommere, and chief place of a canton, in the district of Mayenne. The place contains 1377 and the canton 13,535 inhabitants: it includes 21 communes.

BECHTELHOLZ, a forest town of Sweden, in the Rhine circle of notary, belonging to four co-heirs, two of whom are Roman Catholics and two Lutherans.

BECK, a little river or brook, called alto rivulet or rill. According to Verbiest, the original word is hétor, which properly imports a small stream of water issuing from some houra or spring.

Hence, bell-hecks, little brooks so called, on account of their glint and depth, or rather from their being covered, or much concealed. See HILL.

Beck is chiefly used among us in the composition of names of places originally situate on rivulets; hence Welbeck, Bournbeck, &c.

The Germans use beck in the same manner.

BECK, David, in Biography, an eminent portrait painter, was born at Arnheim in Gelderland in 1621, and became a disciple of Vandyke, from whom he acquired a fine manner of penelling, and that sweet style of colouring in which this matter excelled, together with that rapidity of execution for which he was so famous. He was appointed portrait painter to Christiana queen of Sweden; and by her recommendation, most of the illustrious persons in Europe fat to him for their pictures. In his person and behaviour he was handsome, agreeable, and polite; and though he was much favoured by his royal mistresses, he wished to visit his friends in Holland, very much against the queen's inclination; but as he soon after died in Holland, at the early age of 55, it was suspected that he was poisoned. As he travelled through Germany, he was frequently taken ill at an inn, where he died, and the illness terminated in his apparent death, by which he was laid out as a corpse. His will, which had been regretted the event, and was only read by his friends, revealed their foresight by drinking it only. One of these, in a state of intoxication, fuddled, that their master was total of a glass while he was alive, and proposed not to spill the grant by giving him a glass, though he was dead. A goodly fire was raised, and endeavoured to put some liquor into his mouth. Upon this Beck opened his eyes, and the servant compelled him to swallow what remained in the glass. The painter revived, and, by due attention, not only closed the instrument, but perfectly recovered. In the midst of his illness, he received from his great patron, old ladies, and several in gold of a large fine. P. L.便捷

BECKM, or BECKM, in Geography, a fauborough town of Germany, in the circle of Weilphalia, and district of Minden, seated on the Weis, 17 miles S.S.E. of Minden. In 1733 it was almost wholly consumed by fire.

BECKER, Daniel, in Biography, was born at Dessau, in December 1594. He took his degree of Doctor in medicine at Göttingen, and was made professor of the same chair, and rector of the university. Becker was one of our medical works, but that which principally contributed to improve his name, is his "De cultura Praetexti, et curato singulare," or the extraordinary care of the Prefix.

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fan knife-swallower; first published in 1636, and since frequently reprinted. The subject of the history is a young man, aged 22 years, who endeavoured to excite vomiting by introducing the handle of a knife, ten inches long, into the oesophagus; the knife slipping from his fingers, dropped into his stomach, where it continued, occasioning much pain, about six weeks. No probable means of relieving him, or of obtaining the discharge of the knife occurring, it was determined, by his medical attendants, to make an incision through the integuments of the abdomen into the stomach, and to extract the knife through the wound. The operation was performed, the knife taken out, and the patient recovered in a few days. The author relates several other cases of persons who had received wounds, penetrating into the stomach. In some, the wounds were completely healed; in others, the edges of the wounds becoming callous, left fibrous openings into the stomach, through which the food passed, neither when covered with a compress. This work was translated into English, and published in 4to. by Dr. Laki, in 1622, under the title of "A remarkable cure of the Proflitul swallow knife." Laki added other cases of wounds penetrating into the stomach, which terminated in the same ways, as those related by Becker. To both the Latin and English editions of the subject are added. He died the 14th of October 1657. For the titles of his other works, none of which are of much estimation; see Haller's Bib. Chirurg, et Anat. His son Daniel, who was educated under his father, after visiting the principal schools on the continent of Europe, was made doctor of medicine at Strasbourg, in the year 1652; returning to Konigberg, he was appointed professor in ordinary, and soon after physician to the elector of Brandenburg. He died suddenly Feb. 5th 1670, and was succeeded in his honours by his son Daniel Christopher, but they neither of them left any works deserving notice.

Becker, Balthasar. See Becker.

Becket, Thomas, an English prelate, famous as the occasion of much political contention during his life, and as the object of much superstitious veneration after his death, was born in London in 1119, and proceeded his studies at Oxford, Paris, Bologna, and Auxerre. During the interval of his residence at Paris and Bologna, he was introduced to Theobald, archbishop of Canterbury, who, being captivated with his graceful and winning address, gave him two livings in Kent, and obtained for him two prebends in the cathedrals of London and Lincoln. As at this time he was only in the decumns's orders, he probably held these benefices by the pope's dispensation, which his patron might easily have procured. After his return from Auxerre, where he completed his studies, particularly in the civil and canon laws, he was employed by the archbishop as his agent to the pope, in order to solicit the restoration of the lazar-house powers to the see of Canterbury. Having conducted this negotiation with dexterity and success, he was deputed on another important commission, the object of which was to obtain from the pope those prohibitory letters against the coronation of prince Eufiface, by which that design was defeated. Upon his return to England from this successful embassy, the archbishop conferred upon him several new favours, appointing him provost of Beverley and dean of Haftings, with the right of retaining his other benefices, and just before the death of Stephen, investing him with the archdeaconry of Canterbury. Immediately upon the accession of Henry II. to the throne, in 1158, he was appointed chancellor of England at the request of his patron, who thought no dignity or truft above his merit. The chancellor of England, at this time, had no distinct court or judicature in which he presided; but he acted together with the judiciary and other great officers, in matters of the revenue, at the exchequer, and sometimes in the counties upon circuits. The great feal being in his custody, he superintended and sealed the writs and precepts that issued in proceedings pending in the king's court, and in the exchequer. He also supervised all charters which were to be sealed with that seal. In the council his rank was very high; and he had the principal direction and conduct of all foreign affairs, performing most of that business which is now done by the secretaries of state. Such was the office to which Becket was raised; but the favour of his master made him greater than the power of that office, great as it was in itself. In this station he paid his court so successfully to his royal master, not only by his dexterity in business, but also by his splendid manner of living and agreeable conversation, that he became his greatest favourer, and his chief companion in his amusements. Employments and truits of all kinds were heaped upon him without measure or propriety. Besides the office of chancellor, and a scandalous number of ecclesiastical benefices, he had royal cables and forts committed to his custody, the twofold utilities of vacant baronies, and the effects of great baronies belonging to the crown. These resources he expended without account or control; and Henry reproved in him such a degree of confidence, that he seemed almost to share the throne with the sovereign. It must indeed be allowed that Becket professed in a pre-eminent degree all the qualities that could most powerfully engage the affections of a prince, who had a judgment capable of dispassion, and a heart formed to love extraordinary merit, but a temper that required some delicacy of address in those who approached him very nearly, and that yielded most to those friends whose character appeared most congenial to his own. The perfon of Becket was graceful and his countenance pleasing; his wit was lively and facetious, his judgment acute, his eloquence flowing and sweet, and his memory capacious and ready on all occasions. The time he had palled in that school of the most exquisitely polite, the court of Rome, had greatly improved and refined his understanding. Nor was his capacity limited to the sphere of business. He made himself the king's perpetual companion in most of his pleasures, and confided his tattle so naturally, and with so much ease, that in paying his court he seemed only to indulge his own inclinations. He occasionally laid aside the ecclesiastical habit and character. In an expedition with the king to France, he advised the military profession, headed a body of men in his own pay, and commanded at various sieges. In his manners there was a certain inexpressible grace derived from nature and improved by art, which rendered his virtues more amiable, and even his vices agreeable. Thus his profuseness and ostentation appeared like generosity and greatness of spirit; nor indeed was be destitute of the qualities, though he carried them far beyond proper bounds. His expense was enormous, and Henry would have been jealous of it, as intended to acquire too much popularity, if he had not been perfused, by the address of Becket, that all his magnificence, in which the son of a private citizen surpassed even the greatest and most opulent earls, was only designed to do honour to his bountiful master, whose creature he was, and upon whom his whole fortune must absolutely depend. Yet, amid the luxury in which he lived for several years, and all the temptations of a court where gallantry reigned, he was, if the writers of his life may be credited, constantly temperate and invincibly chaste.

At the time of the death of archbishop Theobald, Becket's patron, the king, was in Normandy; but as soon as he heard of it, he resolved to raise his chancellor to the primacy, in hopes by his means of governing the church in tranquility. This advancement however was retarded for about a year.
year by the opposition of the archbishops; the king's mother, and of the clergy and bishops of England. But Henry's resolution was fixed, and his means were so great as to overcome all remonstrances; so that Becket, being nulli prius, was consecrated at Canterbury, June 6, 1162. As soon as Becket found himself firmly seated in the archbishopric of Canterbury, he suddenly changed his whole mode of life, and from being the gayest and most luxurious courtier, he became the most austere and solemn monk. Without the knowledge of his previous knowledge of his intention, and very much to his surprise and dissatisfaction, he resigned the office of chancellor. Before the king's return to England in 1163, he had received many complaints of the severity of the new prelate, that he became irksome, that he was too late, that he had made a wrong choice. In his interview with Becket at Southampton, it was observed by the whole court that his affection was cooled, and he soon after manifested his dissatisfaction with the conduct of the prelate, by obliging him, much against his inclination, to resign the archbishopric of Canterbury. In 1163, Becket attended a council, summoned at Tours by pope Alexander III., where he was treated by the pope and cardinals with particular respect; and where, it is probable, he was satisfied by the pope in his design of becoming the champion of the liberties of the church, and the immunities of the clergy. It is, however, certain, that soon after his return he began to prosecute this design without his former reserve, and the zeal which he manifested produced an open breach between him and his sovereign. Henry was determined to be the sovereign of all his subjects, clergy as well as laity; to oblige them to obey his laws, or to answer for their disobedience in his courts of justice. Becket, on the other hand, maintained, that the clergy were subject only to the laws of the church, and were to be judged only in spiritual courts, and to be punished only by ecclesiastical sentences. In order to bring this question to a speedy issue, which the licentiousness of the clergy, and the atrocious crimes committed by some of them at this time, rendered absolutely necessary: a council of the clergy and nobility was summoned at Wellsminster; and at the council the king required that the archbishop and other bishops would consent to deliver to his officers a clerk, who was degraded for any crime, in order to his being punished for it according to the laws of the land. This request was reasonable; but the prelate's influence refuted the demand; and the council broke up in confusion. Although Becket solemnly professed and swore, in the words of truth, and without reserve, to obey the laws and customs, commonly called the constitutions of Claridon, which reduced all the clergy of all denominations to a due subjection to the law of the church, and preferred the immunities of the clergy; he soon began to insist on points of respect, by extraordinary acts of power, and by disturbing the performance of the sacred office of his functions; and obtained from the pope a bull, allowing him the obligation of his oath, and enabling him to retire the duties of his forced office. The king, however, determined to remove the prelate out of the kingdom; but being prevented from taking his escape by contrary winds, he returned to Canterbury; and after waiting upon the king at Woodstock, to supplicate for pardon for attempting to leave the kingdom without his permission. The king, however, without any act of expression of displeasure, informed him, "if he had left England before he thought it was too late to continue both?" This interview was soon followed by the archbishop on the part of Becket, which induced the king to summon a parliament at Northampton, Oct. 1st, 1163, which unanimously found the prelate guilty of contumacy, by refusing to attend the king's court when he was summoned, and sentenced him to forfeit all his goods and chattels. He was also required to receive a sum of 300 marks, which the king had lent to him, when he was chancellor, and to render an account of 250,000 marks, which he had received from vacant benefices. To this demand he was wholly of fo furious a nature, that, though he appealed to the pope, and his episcopal brother defended him through fear, and urged him to resign his office, affuring him that if he did not he would be tried for perjury and high treason. The letters likewise became loud and vehement in their clamours against him, to this Becket thought it most prudent to leave the kingdom. Accordingly he left Northampton at midnight, accompanied only by two monks, and travelling on foot and by night, he arrived at Lincoln, and from thence he passed by water to a solitary island, where he remained till an opportunity offered of passing over to Flanders. Some fee that he travelled to Sandwich, and hired a sailing boat to carry him to Bologna. However that he was, he retired to the monastery of Saint Bertin. Upon his retreat, the king confiscated the revenues of the archbishopric, and sent ambassadors to the king of France, and the earl of Flanders, demanding these princes from affording Becket shelter in their dominions. The ambassadors met with a cold reception at the French court at Compiègne, and were told by Lewis, who was a superstitious bigot, and a great admirer of Becket, that he would protect the persecuted prelate with all his power. They then proceeded to Sens, where the pope resided, who, after admittance to them by an audience, and confuting his ambassadors, informed them, that no answer could be given to their petition till the archbishop had been heard. Becket, as soon as he was assured of the favour and protection of the king of France, paid him a visit at Soissons, where he was affectionately received, and urged to accept an order on the royal treasury for everything he needed during his stay in France. From Soissons he proceeded with a numerous retinue for Sens, which he entered in a kind of triumph, and here the pope treated him with the greatest respect and kindnefs. At a solemn council of all the cardinals and prelates, he was seated at the pope's right hand, and allowed to keep his feast while he explained his cause. Having produced, in the course of an artful speech, a copy of the constitutions of Claridon, several of which were directly calculated to abridge the power of the pope and cardinals, the whole assembly expressed their abhorrence of them in the strongest terms, and at the same time passing the highest encomiums on the archbishop, declared that his cause was that of God and the church, and that he ought to be supported. Becket, with a view of further increasing his wealth with the pope, urged him to declare his lands, which, however, the pope, with the advice of his cardinals, immediately refused to him, appointing him a residence in the abbey of Pontigny in Burgundy.

When the ambassadors returned to England, and made their report, Henry was highly offended, both with the pope and the archbishop; and in token of his resentment prohibited the payment of pence, and commanded all clerks who pretended to appeal to the pope to be imprisoned. He also commanded all the goods and revenues of the archbishop, and of all the clergy who adhered to him, to be seized; and resolved to confiscate the chancery, and to hand the princes of all the private friends, retainers, and relations, to the number of about 400. Becket, during his residence at Pontigny, employed himself in exercises of devotion, and also in writing expostulatory letters to the
king and bishops of England, in inflaming excommunications against several officers of the crown, and in threatening even to excommunicate the king himself. Notwithstanding a spirited remonstrance addresed to Becket by the English prelates, he persisted in his purpose; and communicated it to the pope in a letter, which represented Henry as a cruel, impious, unrelenting persecutor, who had tried and condemned Chrift at Northampton, in his perfon. Henry was much alarmed; and called a council of his barons and prelates at Chinon in Touraine, to consider what was to be done for preventing his excommunication, or for guarding against its consequences. After a long deliberation, it was thought the most expedient to appeal to the pope. In the mean while Henry sent orders to England to guard the sea-coasts, and to take other measures of precaution. Although Becket was prevented by the interposition of the king of France from executing his design of excommunicating Henry, he excommunicated his miniflers and chief confidents, and declared the impious conftitutions of Clarendon null and void; absolved all the bishops of England from the unlawful oath they had taken to obey him, and excommunicated all persons who paid any regard to them. Upon these precautions the proceedings against Becket threatened to expel all the monks of the Ciftercan order from his dominions, if they any longer entertained his enemies; the archbishop of Canterbury at Pontigny; upon which he removed to Sens about Martinmas, A.D. 1170, where an honourable asylum was provided for him by the king of France. The pertinacity of Becket rendered ineffectual for a long time all the efforts of the English prelates, of the pope, and of the king of France, for terminating the contention between him and the king of England. At length, however, all preliminaries for a reconciliation being adjourned by the papal nuncios, the archbishop was conducted in great state to an audience of his sovereign, July 22, A.D. 1170, in a meadow near Fretville, where the French and English courts, with a prodigious multitude of people of all ranks, were assembled. The conduct of the king on this occasion was singularly condescending; but Becket's lofty and retentful temper was so little improved by it, that he returned Henry's civility and condescension with complaints and remonstrances. After a promise extorted from the king to repair all the injuries which had been done to the church, the archbishop dismounted, in order to throw himself at his feet; but Henry prevented him, and stepped so low as to hold his stirrup, and affult him in re-mounting. This reconciliation, however, was far from being cordial, on the part either of Henry or Becket, and it was not likely to be permanent. Whilft the archbishop was waiting at Whitlaff, a fea-port in Flanders, previously to his return to England, he sent over three bulls, one for fulfeding the archbishop of York, who had been employed in crowning the young king, and two for excommunicating the bishops of London and Salisbury, who had affulted at this ceremony. This conduct, which was inexcusable at the moment when he pretended to return in peace, excited against him universal indignation, and eventually proved the caufe of his ruin. On his reaching the English shore, attempts were made to prevent his landing, and he was infulted by some perfons in arms, who commanded him in a threatening tone to abfolve the excommunicated bishops. In his way to Canterbury he was accompanied by a great multitude of people, and entered the city in a kind of triumph amidst the acclamations of his attendants. Soon after his arrival, application was made to him for abfolving the bishops whom he had fulfeded and excommunicated; and the young king, who conurred in the application, and who had inuited an order for this purpofe, was much incenfed at his refufal, more efpecially as the

cessures which he had affulted on thofe prelates who had affulfed at his coronation seemed to call in quifition its validity. In his progres from Canterbury to Woodluff, where the young king reigned, he was attended on his approach to London by prodigious crowds of people, and conducted to his lodgings in Southwark with loud acclamations; in return for which he feattered among the populace both money and epifcopal benefices. Here his vanity was mortified by a message from the young king, forbidding him to proceed any further, or to enter any royal town or cable, and commanding him to return immediately to Canterbury, and to confine himself within the precincts of his church. After his return to this city, he found himself deferted by many of his friends, and received reports of the infults they fuffered, and the depredations that were committed upon his effufles, fo that he indulged gloomy apprehensions, and laid to one of his chief confidents, "that he was now convinced this quarrel would not end without blood, but that he was determined to die for the liberties of the church." When the excommunicated prelates arrived in Normandy, and implored the protection of the king from the disgrace and ruin with which they were threatened by the paimate, the indignation of Henry was roused, and in the moment of imperfped passion, he exclaimed, "hull this fellow, who came to court on a lame horse, with all his effufes in a wallet behind him, trample upon his king, the royal family, and the whole kingdom! Will none of all these lazy cowardly knights, whom I maintain, deliver me from this turbulent prelate?" This passionate exclamation made too deep an impression on those who heard it; and particularly on four barons, who formed a resolution, either to try the archbishop into tribunafion, or to put him to death. Accordingly, having concerted their plan, they fett out for Canterbury by different routes and arrived at a cable about 6 miles from the city on the 28th of December, A.D. 1170; and on the following day they proceeded to the city, and getting admission into the archbishop's apartments, they told him, that they were fent by the king with a command that he fhould abfolve the prelates, and others whom he had excommunicated, and then go to Winchester, and make fatisfaction to the young king, whom he had endeavoured to dethrone. Becket, after a violent altercation, in the course of which hints were given that his life was in danger if he did not comply, perfeded in his refufal. Upon the departure of the barons, one of them charged his fervants not to let him flee; to which Becket, who overheard them, replied with great vehemence; "flee! I will never flee from any man living. I am not come to flee, but to defy the rage of impious affifants." The barons, with their accomplices, finding their threats ineffectual, put on their coats of mail, and taking each a fword in his right hand, and an ax in his left, returned to the palace, but found the gate fliut. When they were preparing to break it open, Robert de Broc conflucted them up a back flair-case, and let them in through a window. A cry then arose, "they are armed! they are armed!" on which the clergy hurried the archbishop almost by force into the church, hoping that the sacredness of the place would protect him from violence. They would also have fht the door; but he exclaimted "begome, ye cowards! I charge you on your obedience, do not shut the door. What, make a caufe of a church!" The confpirators having searched the palace, came to the church, and one of them exclaiming "Where is that traitor? where is the archbishop?" Becket advanced boldly, and replied, "here I am, an archbishop, but no traitor! I am ready to fuffer in the name of him who redeemed me with his blood. God forbid that I should fly for fear of your fwords, or recede from
from justice." They once more committed him to take off the excommunication and interdiction of the bishops. He replied, "no satisfaction has yet been made; nor will I abdicate them." They then told him, "thou shalt infallibly die according to thy defeat." "I am ready to die," replied Becket, "that the church may obtain livery and peace in my blood. But in the name of God, I forbid you to hurt any of my people." They now raised upon him, and undertook to drag him out of the church, with an intention, as they themselves afterwards declared, to carry him in bonds to the king, or if they could not do that, to kill him in a less sordid place. But as he clung fast to one of the pillars of the choir, they could not free him from there. During the struggle, he shook William de Tracy to the ground, that he almost threw him down; and as Reginald of Tizurrute pressed harder upon him than any of the others, he thrust him away, and called him "pimp." This opprobrious language more enraged that violent man; he lashed up his sword against the head of Becket, who, bowing his neck, and joining his hands together, in a posture of prayer, recommended his own soul, and the cause of the church, to God, and to the saints of that cathedral. Put Edward Grane, one of the monks of Canterbury, interpolating his arm toward the blow, it was almost cut off; and the archbishop also was wounded in the crown of his head. He fled a breton friar, which likewise fell on his head, in the same devout posture, without a motion, word, or groan; but after receiving a third, he fell prostrate on his face, and all the accomplices prostrating now to a share in the murder, a piece of his skull was struck off by one of them; upon which another found out the brains of the dead archbishop with the point of a sword, and scattered them over the pavement of the church.

Thus was assassinated, in the 53d year of his age, and 9th of his pontificate, A.D. 1173. Dec. 29. Thomas Becket—" a man," says lord Lyttelton, "of great talents, of elevated thoughts, and of invincible courage; but of a most violent and turbulent spirit; excessively passionate, haughty, and arrogant; in his resolutions inflexible, in his determinations unchangeable. It cannot be denied that he was guilty of a wilful and premeditated perfidy; that he opposed the sacred cause of public justice, and acted in defiance of the laws of his country, laws which he had most solemnly acknowledged and confirmed; nor is it his evident, that during the heat of this dispute, he was in the highest degree ungovernable to a very kind master, whose confidence in him had been boundless, and who from a private condition had advanced him to be the freestone man in his kingdom. On what motives he acted can be certainly judged of by him alone, to whom all hearts are open. He might be misled by the prejudices of a bigoted age, and think he was doing an acceptable service to God, in contending even to death, for the utmost excess of ecclesiastical and papal authority. Yet the strength of his understanding, his conversation in courts and camps, among persons whose notions were more free and enlarged, the different colour of his former life, and the fundament of the change which seemed to be wrought in him upon his election to Canterbury, would make one suspect, as many did in the times when he lived, that he only became the champion of the church from an ambition of forking his power; a power more independent on the favour of the king, and therefore more agreeable to the haughtiness of his mind, than that which he had enjoyed as master of the crown. And this suspicion is increased by the marks of cunning and selfishness which are evidently seen in his conduct on some occasions. Whether it is impossible, that when first he assumed his new character, he might act the part of a zealot, merely or principally from motives of arrogance and ambition; yet afterwards, being engaged and inflamed by the contest, work himself up into a real enthusiasm. The continual praiseth of those with whom he acted, the honours done him in his exile by all the clergy of France, and the vanity which appears so predominant in his mind, may have conducted to operate such a change. He certainly showed in the latter part of his life a spirit for art as fervent as the warmest enthusiasm; such a spirit indeed as constitutes the zeal of a statesman. But he had defended the established laws of his country, and the fundamental rules of civil justice, with as much zeal and intrepidity as he opposed them, he would have deserted to be ranked with those great men, whose virtues make us easily forget the alloy of some natural imperfections; but unhappily his good qualities were so disfigured, that they became no less hateful to the public mind of the kingdom, than the word of his vices." Mr. Home closes his account of the assassination of Becket with the following concise sketch of his character. He was "a prelate of the most lofty, intrepid, and inflexible spirit, who was enabled to cover to the world, and probably to himself, the enterprizes of pride and ambition under the disguise of futility and of zeal for the interests of piety and religion. An extraordinary perverting, truly, if he had been allowed to remain in his first station, and had directed the vehement of his character to the support of law and justice; instead of being engaged, by the prejudices of the times, to sacrifice all private duties and all public connections to ties which he imagined or represented as superior to every civil or political consideration. But no man, who enters into the genius of that age, can reasonably doubt of this prelate's fineness." Another judicious historian (Dr. Henry) says of Becket: "He was evidently a man of very great abilities, particularly of consummate cunning, unadorned courage, and invincible constancy in the prosecution of his designs. But his schemes were of a most pernicious tendency, to emancipate the ministers of religion from the restraints of law, and to subject his king and country to a foreign power. He was vain, obdurate, and implacable; as little affected by the entreaties of his friends, as by the threats of his enemies. His ingratitude to his royal master admits of no excuse, and hath fixed an indelible stain upon his character. Though his murders were highly criminal, his death was very reasonable, and probably prevented much mischief and confusion."

The respect paid to the memory of Becket, after his death, was extravagant beyond all bounds, and remains on record as an evidence of the superstition and credulity which prevailed at the period in which it occurred. The king of England, to whose command it was generally imputed, was represented as "that horrible persecutor of God, who exceeded Nero in cruelty, Julian in perfidy, and Judas in treachery;" and the pope was loudly called upon by the kings of France and many prelates to draw the sword of St. Peter, and to inflict some exemplary punishment upon him. But none expressed greater grief and horror at this deed than Henry himself, who broke out into the loudest lamentations, refused to see any company, or admit of any consolation for three days. He also deputed an embassy to Rome to vindicate himself from the imputation of having been the cause of it. All the clergy of the whole church were suspended for nearly a year in the church where it had happened; and the church itself was, by order of the pope, interdicted. In 1173, Becket was canonised by a bull of pope Alexander; and a particular collect was appointed to be said in all the churches of the province of Canterbury, for expiating the guilt of his murder.
did not however complete. Dr. Milward, who had formed a similar design, is said to have purchased what manuscripts were left by him on this subject, of his executors; but neither did he carry his intention into execution. It is probable that, while making this search after ancient British writers, Beckett met with accounts of the diocese called a brening, and conceiving that to be a symptom of the venerable diocese, he was induced to publish his three dissertations on the antiquity of that complaint, which was known, he says, before the discovery of the West Indies by Columbus. These were first printed in the Philosophical Transactions. Beckett died at Abingdon in 1738. His works were collected together, and published in 9 vols. 8vo. in 1740, by the noted Mr. Edmund Curll.

Beckett, Isaac, a mezzotinto engraver of some eminence, was born in Kent in 1653, was originally an apprentice to a calico-printer, and obtained the secret of scraping mezzotinto from one Loyd, a print-seller, with whom he lived for some time. He afterwards connected himself with an engraver in mezzotinto, with whom he had been acquainted at an earlier period of his life, and who assisted him, as he drew better and more expeditiously than himself. His mezzotintos are often clear and well fummed; but his middle tints are not sufficiently distinguished, so that his shadows appear flat and heavy. One of his best prints is engraved on a middling-sized upright plate, representing Adrian Beverland drawing from a flute, and having in the back ground monuments, pyramids, and several relics of antiquity. The time of his death is not known. Strutt.

Beckett, William, son of Isaac Beckett, a surgeon of some eminence at Abingdon, in Berkshire, under whom he received his education, was born in the year 1684. At a proper age, he was sent to London, and was for some years pupil to Mr. Jos. Bateman, surgeon to St. Thomas's hospital in Southwark. That he was diligent in cultivating his profession, appears by the early specimens he gave of the result of what he had been in practice: for in 1707, he published a collection of chirurgical observations, containing relations of some curious cases that had fallen under his notice; and in 172, "New discoveries in the Cure of Cancers," and soon after, a recital of the case of Dr. James Keil, the celebrated physician and mathematician, who died of a cancer in his mouth. Beckett had been accused of mismanaging this case, and therefore published the account in vindication of his practice. In his New Discoveries, he pretends to have been frequently successful in removing cancerous tumours, by means of a digestive, the manner of preparing which he does not however disclose. In a subsequent edition of this work, he gives the description of a medicine, which had been used successfully, which was said, in eradicating cancers by the family of the Prince of Northampton. It consists of yellow arsenic and boric acid, mixed with the confidence of a pottle with the pulp of an apple. It is called the red caustic. A familiar preparation has been since used by Plunket and others. In 1721, he published two letters addressed to Sir Hans Sloane, in which he refutes the current opinion of the efficacy of the royal touch in curing the evil, which was perhaps preparatory to his being elected fellow of the Royal Society. About this time he published proposals for printing an account of the lives and writings of the most eminent British writers in medicine, in 2 vols. 8vo. which he
and studied at New College, Oxford, of which he was admitted fellow in 1608. After several ecclesiastical preferments, he became Dean of the archdeaconry of the year 1649, and was employed by a tycoon held in St. Paul's churchyard, London, in conjunction with two other persons, to draw up a form of law, by which the protection of the White Fathers, or Lollards, was to be conducted. While he was about to become king Henry VI, he wrote a letter, preserved in manuscript at the Cottonian library, in which he heartily advised, in opposition to the English law, the rights of the keepers of the bed, and the bishops of England, and in the interest of the abbeys and priories of that place, he made security of that, keeper of the great book, and bishop of Bask and Wells, to which he was consecrated in 1443. He is represented as having been well skilled in public learning and history, and very conversant in the Holy Scriptures; as a good preacher, and as a generous patron of ingenious and learned men, so that he was called the Macer of his age. His works of usefulness and charity were numerous. He founded Lincoln college in Oxford; procured an endowment for New College, in 1455; laid out a considerable sum of money in repairing houses belonging to his see, and erected the west side of the cloisters at Wells, and also conducted in the market place of that city. He died at Wells in 1465. A large collection of his letters is preserved in the library at Lambeth, and a volume of sermons and some other treatises are also left to him. Bisog. Brit.

BECMARIE, in Entomology, a genus of insects established by Godred. See Rhindamner.

PECTOLA, in Geology. See Beka.

BECANGILL, a name sometimes given to a province of Asia, which is a part of Anathola, bounded on the north by the Black sea, on the west by the sea of Marmora and the Archipelago, on the south by Nautia Proper, and on the east by the province of Boli. The capital is Bafa.

BECTIVE, in the county of Meath, Ireland, where there are considerable ruins of an abbey which belonged to the Cistercians. It was founded by Murchard O'Mahon, king of Meath, in 1146; and being richly endowed, the abbot had a place among the peers in the assemblies of parliament, and wore a crown. The cloisters with a tower are almost entire. It was pleasantly situated on the banks of the Boyne, over which river there was a bridge; and at present a new village, called Bective-bridge-end, has two fairs annually. It is 8 miles from Trim, and about 44 from Dublin. Mon. N. H. Hibern. Ware's Antiquities.

BECQUASSE, a lea among the Turks demarcated from their founder Béchàta, preacher to Sultan Amurath.

All the liberties belonging to the Porte are of the religion of Béchatta, and are laid to have derived their origin from the founder of this lea. Their habit is white: on their head a white cap of several pieces, with tassels of wool twined round it. They wear shirts, which are the hour of prayer, which they perform in their own assembly, and they make frequent declarations of the unity of God.

BED, a place prepared to stretch and compose the body on, for rest and sleep: made chiefly of feathers included in a wicker case. Of beds there are several sorts: as a feather-bed, a down-bed, a flaxseed-bed, a lute-bed, a truck-bed, &c.

In the first and rudest ages of mankind, it was the universal practice to sleep upon the floor of beasts. This was the custom among the Greeks and Romans, and also among the Circassians, and among Britons. This custom prevailed till modern times among the common people in some parts of Germany. These beds, some of which are worn in the day, were spread at night on the floors of their apartments. In process of time, these beds were changed for soft rushes and heath, and afterwards for straw. Pliny (l. iv. c. 48. l. xxi. c. 36.) says, that the beds of the Roman gentry were generally filled with feathers, and those of the inns with the soft down of reeds. Straw was used even in the royal chambers of England, so late as the close of the 13th century. Beds, filled with chaff, thatch, or straw, are used by the common people in many parts of Great Britain and Ireland, and also in France and Italy, at this day. Beds were for a long time had upon the ground; till at length the custom of raising the beds on feet or pedestals, which anciently prevailed in the East, and which was introduced into Italy, was adopted in Britain. But all the materials of which beds are made, and the manner of adapting them, vary among different ranks, and in different nations. By the English statutes, no beds are to be held, except filled with one sort of stuffing only: e. g. feather beds with only dry pulled feathers; and down beds with clean down alone. No feather beds are to be mixed with the former; nor on the contrary, there being usually three persons to one bed, whereof the middle place was accounted the most honourable, as well as the middle bed. See Triclinium. These beds were unknown before the second Punic war: the Romans, till then, sat down to eat on plain wooden benches, in imitation of the heroes of Homer; or as Varro expresses it, after the manner of the Lacedemonians and Cretans. An innovation in this practice is ascribed to Scipio Africanus, who brought from Carthage some of these little beds, called “Punicas,” or "Archaica," which were of wood, very low, fluffed only with hay or straw, and covered with the skins of sheep or goats, “bedinis pellicis flarci." These beds in respect of delicacy differed little from the wooden benches; but when the custom of bathing prevailed, the practice of refining themselves more commodiously by lying along than by sitting down, was adopted. As far as the hides, it did not seem at first consistent with their mode of adapting the mode of lying; accordingly, they kept to the old custom all the time of the commonwealth; but, from the first Cæsars, they ate on their beds. As to the youth, who did not yet put on the age of Crises, they were long kept to the ancient dietetic line. When they were admitted to table, they only sat on the edge of the beds of their several relations. Never, says Struma, did the young Cæsars, Cæsius and Lénum, sit at the table of Augustus; but when they were "in manibus," or, as Tacitus expresses it, "ad secta," from the generous simplicity, the Romans, by degrees, contented themselves both to the most forsaken magnificence. Pliny speaks, it was no new thing to furnish their cover with pieces of silver, adorned with the figured mass, and the rubies on spaces. Hist. Nat. lib. xxxix. cap. 11. Indeed, speaking of Helegabulus, that he had both of gold and ivory, and Pompey, in his third triumph, "as did the rest of gold." They had also "bedes et interiex, et..."
and a fae funebo, or euvemile, on which the dead were carried to the pile. See **Funeeral**.

**Bed of State.** See **Parade**.

**Bed of Julier**, Lit de Julier, in the French Law, denoted a throne on which the king used to be seated in parliament. In this style, he was laid to hold his lit de jujif for; when he went to the parliament of Paris, and held a solemn session, under a high canopy erected for the purpose. The bed of justice was only held on affairs relating to the state; on which occasion, all the officers of the parliament appeared in red robes; at other times they wore black ones. Several authors have treated expressly on the ceremonies of the bed of justice.

**Bed of a great Gun**, is a piece of plank laid within the cheeks of the carriage, in the middle transom, for the breach of the gun to rest on.

**Bed, or Stock of a Mortar**, is a solid piece of oak, in form of a parallelled, bigger or less, according to the dimensions of the mortar, hollowed a little in the middle to receive the breach and half the trunnions. On the sides of the bed are fixed the cheeks or brackets by four bolts of iron.

In ships, when the decks lie too low from the ports, so that the carriages of the pieces, with the trucks, cannot mount the ordnance sufficiently, but that they lie too near the gunwale; the method is to make a false deck for so much as the piece will require for her traversing to raise it higher; and this they call a bed.

**Bed, in Gardening**, a small elevated plot or compartment of ground, of three, four, or more feet in breadth, which is useful in the culture of many sorts of plants, especially those of the smaller kinds. It is always an eligible practice to low and pick out different sorts of small plants on beds having narrow alleys between them, for the greater convenience of weeding, watering, gathering, &c. as by this means such operations can be performed without trampling on the crops. Thus the ground intended for asparagus and strawberries should be divided into four feet wide beds, with eighteen inches or two feet alleys between them. Onions are likewise cultivated to the bed advantage on four feet wide beds, having ten or twelve inch alleys; the different sorts of lettuce and endive should also be sown and transplanted into separate beds occasionally; and also various sorts of small plants, which can be more conveniently cultivated on beds, or in borders of similar widths. Early radishes are generally sown on beds, or similar compartments, as being more convenient for the purposes of covering them occasionally in frosted nights, and for weeding, thinning, watering, and gathering them.

All sorts of plants that are particularly intended for transplantation, should be sown in beds or narrow borders, so as to admit of standing to weed, water, and draw the plants, without treading upon them; and for the same reason, all plants necessary to be pricked out previously to their final transplantation, should also be put out on such beds; as celery, cabbage, cauliflowers, broccoli, &c. Aromatic and medicinal herbs of all sorts should also, for the greatest part, be disposed in beds with twelve or fifteen inch alleys between, or at least in borders of similar widths; particularly mint, thyme, savory, marjoram, fage, hyssop, balm, penny-royal, tanley, terragon, feverfew, rue, &c. as this method of bedding all sorts of small plants is not only more commodious for performing the necessary operations without injuring the plants, but has an air of uniformity which is constantly to be observed in garden work.

The most proper dimensions for beds of this sort, as has been observed, is four feet or four feet and a half in width, the length at pleasure, with intervening shallow alleys of from nine, twelve, or fifteen inches to two feet width, according to the different sorts of plants, so that a person in the alleys may easily reach half across them to do the necessary work without trampling the plants down, or treading the surface of the ground.

Where flower gardens are wanted to be distinct from the general pleasure ground, the spaces should be divided into regular parallel beds, of three or four feet in width, with eighteen inches or two feet wide alleys, especially when chiefly intended for the curios sorts of bulbous rooted flowers, such as tulips, hyacinths, ranunculuses, amaranth, and other choice sorts, where, by being deposited together in beds, having intervening alleys, they admit of paling between them, to perform the necessary business of culture more easily, as well as to view the plants when in flower. Many sorts likewise appear to greater advantage in this way.

The beds, in these cases, should be neatly edged with box or thistle. See **Edging**.

The grounds of nurseries intended for raising all sorts of flowers from seeds, slips, cuttings, parting of roots, &c. should also be divided into beds of three or four feet in width. And in large nurseries for trees, the ground intended for the reception of cuttings of most sorts of hardy trees and shrubs, should also be generally divided into three or four feet beds, having twelve or fifteen inch alleys between them.

**Beds in common** should only be raised a very little higher than the alleys, unless in cafes of too much fragrant moisture, three or four inches higher than the level of the alley is mostly sufficient; for when raised considerably, the alleys assume the appearance of trenches, and have a disagreeable effect.

The earth of all sorts of beds should be well broken down, and laid as even as possible in digging them over, being afterwards raked into neat order on the surface.

**Beds for raising melons, mushrooms, and the like, are commonly demarcated ridges.**

**Beds, in speaking of hops, denote the floors whereon they are spread to dry.**

**Bed of Corn,** is a heap, flat at top, three or four feet high; otherwise called a couch.

**Bed-tyfens,** a name given by the Arabic Afoinators to a fixed star of the first magnitude in the right shoulder of Orion. Bed-afoin is of a ruddy colour, by which it is easily distinguished.

**Bed, in Meofony,** denotes a course or range of flones.

**Bed, Joint of the,** is the mortar between two flones placed over each other.

**Bed, in Sea Language,** a flat, thick piece of timber laid under the quarters of casks, containing any liquid, and floated in the ship's hold.

**Bed of a River,** the bottom of the channel in which the stream flows.

**Beds, in speaking of minerals and solidify certain strata, or layers of matter, dis pojed over each ether.**

**Beds, in the New Husbandry, denote the spaces occupied by the rows of corn, in contradistinction from the open spaces between them, which are called alleys.**

**BEDALACH,** in the *Materia Medica*, a name given by some writers to the gun bdellium; but particularly to that kind of it which was brought from Arabia, and was of a yellowish colour, like wax.

**BED-CHAMBRE,** or Gentlemen of the Bed-Chamber, are percons of the first rank, fourteen in number, whole office used to be, each in his turn, to attend a week in the king's bed-chamber, lying by the king on a pallet-
BED

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palled off light, and to wait on the king when he consulted the government. Their salary is £2000 per annum. The list of the scholars is the bed-sitter.

BED BUILDING, in Archit. Art, is a term used by workmen to express those members of a cornice which lie below the corona. A bed-building usually consists of ten or more members, an age, a bit, a large baston, and another bit under the coronet.

BEDA, or Bede, distinguished by the epithet \textit{Praeclarus}, in \textit{Bede's Ecclesiastical History}, a learned monk of the eighth century, and one of the first writers of his time, was born in the neighborhood of Wearmouth, in the bishopric of Durham, in 672 or 673. At the age of seven years he was brought to the monastery of St. Peter, founded near the place of his nativity about two years after he was born; and the care of his education was intrusted with abbot Benedict, his founder's cousin, and John of Beverley, for twelve years. Endowed with an excellent genius, and distinguished by indefatigable application, his progress in various branches of learning, during this period, was very considerable. At the close of it, or when he had attained the age of nineteen years, he was ordained deacon by the last mentioned preceptor, then bishop of Hexham, and afterwards archbishop of York. About this time he seems to have removed from the monastery of St. Peter, at Wearmouth, where he was educated, to that of St. Paul's at Jarrow, near the mouth of the river Tyne. For several years he was labouring at the former had been, by the abbot Bede.

Here he was employed in the prosecution of his own studies, and in aiding those of others who resorted to the monastery for instruction. His whole life, which he spent in this retreat, was devoted, as he himself informs us, to the exercises of devotion in the church, and to those of teaching, reading, and writing. At the age of thirty, A.D. 722, he was ordained priest by the same prelate from whom he had received deacon's orders. Although he lived in retirement, the fame of his learning and character soon spread over Europe; and the pope Sergius addressed a letter to abbot Ceolfrid, in which he urged him to send Bede to Rome. The death of the pope, which probably happened soon after this letter was written, prevented Bede from having his own country; nor did it appear, with sufficient evidence, that he ever quitted Northumberland, though some have laid the credit of the story founded on Grasseleisher or Cambrius, that they alleg a proof of the antiquity of the saint. In the walls of the monastery, in which he was buried, and has been lately in the acquisition of it, there was found a note from him, to his friend and abbot Ceolfrid, written in a communication of it to the Saxon. How many works of his have been, knowledge comprehended ever, kind of learning and fame was at the period in which he was extolled to the appellations of \textit{Dignus}, \textit{Praeclarus}, \textit{Venerable Bede}, conferred on him, and kept up in all uniform and uniformly retained by posterity. For this, as little as any other preexistent monk, he is truly entitled to the appellation of \textit{lost Venerable Bede}, conferred on him, and kept up in all uniform and uniformly retained by posterity. For this, as little as any other pre-existent monk, he is truly entitled to the appellation of \textit{lost Venerable Bede}, conferred on him, and kept up in all uniform and uniformly retained by posterity.

There are also twelve years of his life the bed-sitter.

Bede's \textit{Ecclesiastical History} of the English church is uniformly admitted to be his most popular work. It was the first history of the English church written in English, and it was the first that was published in print. It is not designed to be a history of the church, but of the church of England. It is not designed to be a history of the church, but of the church of England.

The last, and most popular of Bede's works is his \textit{History of the Church}, a printed edition of which was published in 1644, and in which the work was first introduced into Britain. In collecting material, for this history, he consulted several chronicles of the English kings before his time; he kept up a correspondence in the several kingdoms of the heptarchy, and he had records to various records and archives preserved in several monarchies; and his history has been regarded as containing the most accurate and comprehensive account of the early state of English unity in that country. The famous Milton, indeed, is said to have objected to this history, that it is deficient with regard to the civil affairs of the country, which are mentioned very curiously, and which form rather a calendar of dates, than a regular history; but it is be considered, that this defect was the fault of the church, and not the peculiar transactions of the period which his history comprehends, this objection must appear to be urged against it with insufficient reason. Milton himself confessed, that he travailed with much worse guides after he parted with Bede. The change that has been alleged against him, of partiality to the Saxons in preference to the Britons, seems to be his exception. But the chief objection to which his history is liable, is the diffuse account which he introduced of legendary miracles and of other trivial and absurd circumstances, extracted without sufficient discrimination and with apparent concretion from the chronicles to which he had access; and yet, when we collect the period in which he lived, and consider, that the principal transactions of the church upon record consisted of such follies and impurities, we may admit some apology for a writer who wished to approximate himself to a faithful historian. Without advertising to the censure of N. de Pinto, which extend to the fable and subjects of Bede's works in general, and which are amply flated and satisfactorily obviated in the Biog. Brit., it may not be improper to mention the objection urged by father Pezon against the chronology of Bede. This father, who has taken great pains, after Isaac Vossius and father Morin, to support the chronology of the Septuagint, informs us, that Bede was the first who endeavoured, in the western church, to maintain the shorter chronology of the Hebrew text; and archbishop Usher, in his \textit{Sacred Chronology}, observes, that Bede was confided in an heretic on account of this innovation. However, his computation was afterwards received, and scarcely any other was admitted in the west till the three learned men above-mentioned appeared in defence of the contrary opinion. If Bede, therefore, was singular in being an advocate for the Hebrew chronology, this singularity affords evidence of his learning, penetration, and good sense. The author's ecclesiastical history is written in easy, though not very elegant Latin; and as to the faults in his style, which have been particularly Do Pinto, they were not apparent to be very great, if compared with contemporary writings; and to compare him with Usher is certainly unjust. Of the Latin original of the History, I have consulted the editions with notes and commentaries: particularly at Antwerp in 1550, at Heidelberg in 1570, at Cologne in 1604, at Cambridge in 1644, at Paris in 1651, and at Cambridge in 1782. A Saxon version attributed to King Alfred, with learned notes by Abbot Whitby, was printed at Cambridge in 1544: and an English translation by Dr. Saint Joan was printed at Antwerp in 1672. The design of the latter text was to suppress the popish religion; and of course it is not deemed very faithful. But a later, at
Bede, even as he has given it in English, might in many passages be shown to be far enough from favouring the doctrines of the Church of Rome.

The last literary labours of venerable Bede, was "A Translation of the Gospel of St. John into the Saxon Language," which he completed with difficulty on the day and hour of his death, which happened on the 26th of May, A. D. 735. The disorder of which he died was an asthma; and he bore the pain that attended it with exemplary fortitude and patience, discharging the duties of his office, and prosecuting the works in which he was engaged, and which he wished to finish, with unabated activity. During many sleepless nights, he is said to have sung praises to Almighty God; and in the prospect of dissolution, he did not differ from apprehensions of it, though he expressed the utmost confidence in the divine mercy; and was able, on a review of his conduct, to declare seriously that he had so lived, as not to be ashamed to die. During an act of devotion, and while he was pronouncing the last word of it, he expired.

It would be easy to cite a great number of testimonies to the extent of Bede's learning, as well as to the excellence of his character. William of Malmesbury, after giving him an extraordinary character, tells us, "that it was much more easy to admire him in thought, than to do him justice in expression." Bale affirms that he was so well skilled in the writings of Pagan authors, that he had scarcely an equal in that age, and that he learned natural philosophy and mathematics from the purest sources, the Greek and Latin authors themselves. Pits says, that he was so well versed in all the branches of learning, that Europe scarcely ever produced a greater scholar in all respects; that even, while he was living, his writings were of such authority, that it was ordered by a council held in England, and approved afterwards by the catholic church, that they should be publicly read in the churches; that from his earliest years, he was remarkable for his piety and love of learning, alternating without interruption his prayers and his studies; and that his intense application furnished him with a complete knowledge of poetry, rhetoric, natural philosophy, metaphysics, astronomy, arithmetic, music, geometry, cismography, chronology, history, and the whole circle of the liberal arts, and all parts of mathematics, philosophy, and divinity. Camden represents him as the singular light of our England; and many testimonies in his favour may be found in the works of our historians and antiquarians, such as Hollandised, Stowe, Speed, Selden, Sir Henry Spelman, Stillingfleet, Mabillon, Walton, &c.

Besides the History, the translation of St. John's gospel, and the letter to Egbert already mentioned, there are a great many works, both published and in manuscript, that have been attributed to Bede; some of which, however, are of dubious genuineness. They are enumerated in the Biographia Britannica, Cave's Hist. Lit. and in the appendix to the fourth volume of Henry's History. They comprise a very miscellaneous collection of versions and commentaries upon several books of the Old and New Testament, of legends, and theological dissertations; among which are some of greater value on the scripture chronology, and many elementary compilations, for the use of his scholars, on the subjects of arithmetic, grammar, rhetoric, astronomy, music, and natural philosophy. The first general collection of his works appeared at Paris, in 1544, in 3 vols. folio; and again in 1544, at the same place, in 8 vols. 4to. At Basle, in the same size and number of volumes, in 1562, were reprinted at Cologne in 1612, and at the same place in 1688. Several of Bede's works have been separately printed; and those treatises, which are mentioned in his own catalogue of his works, annexed to his ecclesiastical history, were published by the learned and industrious Mr. Wharton, from three manuscripts in the archiepiscopal palace at Lambeth, London, 1693, 4to. Cave's Hist. Lit. vol. i. p. 612, &c. Henry's Hist. vol. iv. p. 26, &c. Wharton's Hist. Poetry, vol. i. diff. 2. Biog. Brit. Gen. Dict.

It is from the Ecclesiastical History of this worthy monk, that we know anything concerning music in our country during the seventh and eighth centuries, the most barbarous period of its annals. In his account of the conversion of the Saxons to Christianity, he speaks of litaniæ and allelujæ being sung in the Gregorian manner, according to the Roman ritual, when bishop Stillingfleet thinks that the goodness of the music was the principal incitement to the reception of the mææ by the Saxons.

Bede was himself an able musician, and is supposed to have been the author of a short musical tract, "De Musica Theorica, et Præctico sive Menfurararut." Of the two parts of this treatise ascribed to Bede, the first may have been written by him; the second, however, is manifestly the work of a much more modern author; for we find in it, not only the mention of music in two or three different parts, under the name of diezant, but of instruments never mentioned in writers contemporary with Bede; such as the orgæus, violæ, aula, &c. A notation too of much later times appears here, in which the longæ, the breve, and semibreve, are used, and the above five lines and spaces, with equivalent initials and pauses. The word modus is also used for time in the sense in which the term modus was applied after it ceased to mean key. Upon the whole it seems as if this last part of the treatise attributed to Bede, was written about the twelfth century; that is, between the time of Guido and John de Muris.

Bede, however, informs us that, in 682, John, prebend of St. Peter's in Rome, was sent over by pope Agapetus to instruct the monks of Weremouth in the art of singing, and particularly to acquaint them with the manner of performing the festival services throughout the year, according to that which was practised at Rome. And such was the reputation of his skill, that "the masters of music from all the other monasteries of the north came to hear him; and prevailed on him to open schools for teaching music in other places of the kingdom of Northumberland."

And it is from Bede's information that we have any knowledge of the social and domestic singing to the harp in the Saxon language, upon our island, at the beginning of the eighth century; which is amply detailed in bishop Percy's essay on the ancient English minstrels. Reliques of Ancient Poetry.

BEDA, or BEDE, NOEL, a doctor of divinity in the university of Paris, was a native of Pecardy, and flourished in the beginning of the sixteenth century. His temper was violent and impetuous, and he was a great enemy to every kind of innovation and reform. Erasmus and Faber Stapulensis, who were great promoters of literature, were the objects of his vehement attack. Against the scriptural paraphrases of the former he wrote a book, in which Erasmus detected many misrepresentations and calumnies; and yet such was his influence among his brethren, that he induced the faculty of divinity to censure the works of his antagonist. In his opposition to the design of Francis I. for obliterating the Sorbonne to concur with the other universities of France in giving a favourable opinion concerning the divorce of VIII. of England, he acted a more judicious part; but he injured his character, and ruined his cause, by his passionate and turbulent behaviour, and involved himself in the crime of perjury. After having made the amende honorable, by publicly acknowledging that he had spoken against truth and the king, before the church of Notre Dame, he was committed to prison in 1535, and afterwards sentenced to
bede was a monk and a holy man, who died in the year 1537. he was a furious preacher of the protestants, and one of the chief promoters of the punishment of lewis de burgin, the protestant martyr. his later works were a treatise "de unica magdalenae," against faber, paris, 1519; "two books against faber's commentaries and erasmus's paraphrases," paris, 1526; "an apology against the secret Lutherans," Paris; and "an apology for the daughters and grandchildren of st. amy," against faber. his works in French were: "a répétition of the discussion of the palmes paper," and "a confosition of faith." gen. dict. nouv. dict. hist.

beda, a friend of the religion and law of the Brahmins of hind, often called also pedam and PEDAM, which see; see also BRACHMANS, and BHASTA.

Bedale, in Geography, a market town of England. It is situated in that division of the north riding of yorkshire called Richmondshire, at the distance of 6 miles from North Allerton, and 223 miles north of London. seated on the bank of a small river, it enjoys a pleasant and fertile situation; but being at some distance from any public road, its principal trade is derived from a weekly market and five annual fairs. these are abundantly supplied with horses; the buying and selling of which is the chief business of many persons in this part of yorkshire. the story of this town is very valuable; and the church, which is a large handstone structure, contains some ancient monuments, one of which commemorates Brian Fitz Alan, the last male heir of that family. a Roman road passed through this town to barnard castle. so and some Roman encampments are remaining on the high grounds between this town and ripon. there is a bakery school, and the township contains 226 houses, with 1225 inhabitants.

Bedang, a commentary on the beda of the Brahmins of Hindostan, called also SHOFER or SHYABAH; which see.

Bedarides, in Geography, a town of France, in the department of VENDOME and chief place of a canton, in the district of Avignon. The place contains 1638 and the canton 4226 inhabitants: this territory includes 1074 kilometres and 4 communes.

Bedarieux, a town of France, in the department of the Roussillon, and chief place of a canton, in the district of Perpignan. The inhabitants carry on a manufacture of druggists and other woolen stuffs. The place contains 3333 and the canton 8621 inhabitants: the territory includes 1424 kilometres and 7 communes. N. Lat. 43° 27'; E. long. 3° 24'.

Bedas, Bedas, or VADAS, a name given to a species of fables, who occupy a small district in the northern part of the island of ceylon, and who seem to be (fable) of a peculiar race. the spot which they inhabit is entirely covered with wood, which they conceal themselves in such a manner, that it is difficult to discover them. their complexion is fair, and their features red, like that of the europeans. their language has no analogy to that of any of the other Indian languages. they have no villages or huts, and hold no intercourse with the rest of mankind. their arms are bows and arrows, with which they kill a number of bears, imps, and other animals. they never destroy their masts, but leave them in the hands of which they have given them.

The wildness of these woodland wanderers recognises no authority, except that of their own chiefs; but others, without formally acknowledging the sovereignty of the king, furnish him with ivory, wax, and deer. such of them as live in the European territories, after their arrival in the city of ceylon for the simple things which they require of them.

To prevent themselves from being trifled or maid pocketed, they carry on this traffic, the method they employ is curious: when the people need of iron, knives, or any other articles of smith's work, they approach by night some town or village, and deposit, in a certain place where it is likely to be immediately discovered, a certain quantity of their goods, along with a talisman expressive of what they want in return. on a following night they repair again to the same place, and generally find their expected reward awaiting them. for although they are easily satisfied, and readily allow the advantage to the person with whom they deal, yet, if their requests are treated with neglect, they will not fail to watch their opportunity of doing him mischief. the case, as they can afterward confirm of the articles afforded by this tribe, for the trade profitable; and in some places frequently go into the woods, carrying with them articles of barter. this trade, however, can only be carried on in the manner already described: for no native of the woods can be more afraid of approaching a stranger than the beads, few will venture even to converse with other natives; but the wilder states, known by the name of "rampi-vadalis," are more fond of even hunting than the most timid of the wild animals. the origin of this small tribe, who live in detached families, is unknown. these beads, as well as the chemelles of jaya, who are both fair and few in number, appear (says buffalo) to be of European extraction; and he conjectures, that some European men and women have been formerly left on these islands by Spanish or other, and that, for fear of being maltreated by the natives, they and their descendants confined themselves to the woody and mountainous part of their country, where they retain a savage life. see CEYLON.

Bedaspex, in Ancient Geography, the name given by pliny to the hydaspex, or modern behut, a river of hindooostan. see HYDASPES, and BEDUT.

Bedat, in Geography, a river of France, which runs into the Allier, near montlucon.

Bedburg, a town of Germany, in the circle of the Lower Rhine, and electorate of Cologne, seated on the erft, 14 miles west of Cologne. N. Lat. 51°; E. long. 6° 20'.

Bedding, a number, in respect of horses and other cattle, denotes straw or litter spread under them to lie on.

Bedding, in speaking of a roe, is used by sportsmen for the lodging of that beast. a roe is said to bed; a hart to barbour; a fox to kennel.

Bede Point, in Geography, the eastern cape at the mouth of Cook's river, on the north-west coast of North America.

Bedea, Beddeh, or Baideh, the name of a valley near the red sea, which, according to niebuhr, is 6 german miles from sues, and where the sea (suez says) is something less than 4 leagues broad, by 50 feet deep. this valley ends in a pass between two considerable mountains, called gewonde the south, and bibel the attakah the north; and opens into the low forests of country which runs along the red sea. the mouth of this valley, opening to the flat country and the sea, was called "philamuth," and through this valley has been made a road that the israelites made their passage from the burning army of pharaoh to the red sea; and it is added, that they camped in the bay which terminated this valley, at philamuth, opposite to Bala- zeleon (which see), between migdol and that. in these circumstances, says dr. shaw, the Egyptians might well imagine, that the israelites could have no possible way of escape; insomuch as the mountains of gewonde would stop their flight or progress towards the south, as those of attakah would prevent their passing towards the land of the philistines: the red sea for a half a mile before seen to the sea; whilst pharaoh closed up the valley behind.

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them, with his chariots and horsemen. This valley, adds
Dr. Shaw, is called "Tiah Beniford," i.e. the road of the
Israelites, from a tradition, that is still kept up by the
Arabs, of their having paused though it. It is also called
"Badeah," he says, from the new and unheard-of miracle,
that was wrought near it, by dividing the Red sea, and de-
stroying it in Pharaoh, his chariots, and horsemen. Bruce
oberves, that Dr. Shaw, by interpreting "Badeah" as the
valley of the miracle, forces an etymology, because there
was yet no miracle wrought, nor was there ever any in the
valley. But "Badeah," he says, means "barren," and
"Banneah," as we may imagine, a valley between two
mountains, a desert valley. To his transliteration of "Jubel Attakah," as the "mountain of deliverance,"
Bruce objects, that so far were the Israelites from being
delivered, on their arrival at this mountain, that they were
then in the greatest distress and danger. Attakah means,
according to this traveller, to "arrive," or "come up with,"
either because they arrived within sight of the Red sea; or
it might more probably derive its name from the arrival of
Pharaoh, or his coming in sight of the Israelites, when en-
camped between Migdol and the Red sea. Shaw's Travels,

A late writer observes, that this hypothesis of the pabbage
of the Israelites at Bedem, has been given up by our best
modem critics; and the "Sinus Heroopolitans," or gulf
of Suez, pitched upon as the scene of action. The idea was
first suggested by Le Clerc, and since adopted and defended
by Michaelis, Niebuhr, and almost all the German com-
mentators. Mr. Bryant, however (Obst. on the Plagues of Egypt,
p. 378.), still contends for Bedem, and calls the arguments of
Niebuhr prejudices and misconceptions. The writer, to
whom we now refer, who excludes from this event every
thing that was miraculous, contends, for the pass at Suez,
or not far from Suez, where, he says, at this day there are
shallows fordable at low water, and which might, in former
times, have been frequently dry. Geddes's Critical Remarks,
vol. i. p. 275. See Suez.

BEDE, a town of France, in the department of the
Ile-et-Vilaine, and chief place of a canton, in the district of
Montfort, one league N. of Montfort.

BÉDEGUAR, in the "Materia Medica," the name of a fun-
ginous, or gall, growing upon the mesophyllum (tallopine),
which belongs to the class of algae, as it is polisched of and
celebrated for its alluring power; but it has hardly yet got
a place in our dispensatories, and we are quite unacquainted

BEDEL, or BEDO, Bay, in Geography, lies in the gulf of
the river of St. Lawrence, on the south-west coast of the
island of St. John's, in North America, and is situated S. by
E. from Enbmont bay, on the same coast of the island.

BEDELL, William, in Biography, an eminent prelate of
the English church in Ireland, was born at Black Notley
in Essex in 1570; and being designed for the church,
was educated at Emmanuel college in the university of Cambridge.
Having been chosen fellow of his college in 1593, and taken
his degree of Bachelor of divinity in 1599, he removed to
St. Edmundsbury in Suffolk, where he continued in high
estimation for his attention to the duties of his profession till
he accompanied Sir Henry Wotton to Venice, as his chap-
lain. Here he became intimately acquainted with father
Paul Sarpi, who taught him the Italian language, into which
he translated the English common prayer book; and in re-
turn for the favour conferred upon him by father Paul,
he drew up an English grammar for his use, and affihed him in
his studies. During his stay at Venice, he availed himself of the
knowledge of Rabbi Leo, in acquiring the knowledge of the
Hebrew language, and of Rabbinical learning; and by
his means he had an opportunity of purchasing a very fair
MS. of the Old Testament, which cost, it is said, its weight
in silver, and which he presented to Emmanuel college. He
also formed an acquaintance with Antonio de Dominis, arch-
bishop of Spalato, and communicated to him several corre-
cctions of his book, "De Republica Ecclesiastic," afterwards
printed in London. Upon his leaving Venice, after a re-
idence of eight years, he received from father Paul, as tokens
of his esteem and friendship, his picture, and several valuable
books, together with a MS. copy of his famous history of
the council of Trent, his histories of the Interdict and In-
quiration, and a collection of letters. At Edmundsbury,
where he settled upon his return to England, he employed
himself in translating the histories of the Interdict and In-
quiration, and the two last books of the history of the council
of Trent into Latin, the two first having been translated by sir
Adam Newton. In 1615, Bedell was presented by sir John
Jermy to the living of Horrington, in the see of Nor-
wich; but having samples about paying the fees of induc-
tion, which he regarded as a species of simony, he declined
accepting it; however, he was afterwards admitted without
fees, and lived in this parish for twelve years unnoticed.
To such a degree, indeed, was he disfigured, that when Diodati,
a famous divine of Geneva, came to England, he discovered
his place of abode by mere accident. Bedell was introduced
by Diodati to Morton bishop of Durham, as the esteemed
friend of father Paul, and was treated by him with peculiar
respect. In this obscure retreat he emitted his talents by the
publication of some letters which had passed between him
and James Wadsworth, formerly his fellow-collegian, but
since become a convert to popery, and a penitent of the
inquisition at Seville, concerning the authority of the church
of Rome. These letters were dedicated to king Charles I.
then prince of Wales, in 1624. In this work there was a
passage which justified reliance to tyrannical princes.
Whilst the author lived, the passage escaped animadversion;
befote the treatise was reprinted in 1685, in order to be bound
up with bishop Burnet's life of Bedell, it could not obtain
the licence of sir Roger P'Estrange, till some words were in-
troduced which made the passage appear like a reference to
arguments that were used by others. In 1623, Bedell was
elected provost of Trinity college, Dublin, which he was con-
strained to accept by the king's special command. Upon
his return to England, for the purpose of taking over his
family, he had serious thoughts of resigning his polt; but he
was purfued to return it by an encouraging letter from the
primate, Usher. He then engaged in the discharge of the
duties of his situation with vigour and activity, and was emi-
nently useful in composing divisions among the fellows, esta-
blishing discipline, and promoting religion by weekly sermons
on the church catechism, which he formed into learned lec-
tures of divinity and morals. In this employment he con-
tinued about two years, when, by the interest of sir Thomas
Jermy, and the application of bishop Laud, he was advanced
to the fees of Kilmore and Ardagh. He was consecrated at
Drogheda in September 1629, being then in the 59th year of
his age. In this new situation he had to encounter many
difficulties; but he determined to adopt plans of reformation,
and to correct the abuses and disorders that had prevailed to
a very great degree in his diocese. In order to secure suc-
cesses in his laudable designs, and the more effectually to aboli-
sh pluralities, he set an example of moderation by separat-
ing the fees of Ardagh from that of Kilmore, though he had been
at a considerable expense in recovering some of its revenues;
these fees, however, have been since re-united, and have so
continued. After the compromise of a dispute, which had
occurred between him and lord Wentworth, afterwards lord
Stratford, who was appointed lord deputy of Ireland in 1633,
on account of his having suffused a petition addressed to him for the relief of certain grievances, Bedell proceeded without interruption in his episcopal duties and reforms. In the exercise of his episcopal functions, he adhered strictly to the rubric; but in cases that depended on his own determination, he appeared to be jealous of all approaches to superstition. He was extremely averse to preaching, catechizing, and employing all means for diffusing religious knowledge; and though he never persecuted the papists, he voted most formidable opposition they had in Ireland. He carried several of their clergy by argument; and honoured to bring over the natives by disseminating among them the scriptures, with popular tracts in their own language, and by causing the common-prayer to be read every Sunday in his own cathedral. Bishop Bedell seems to have considered the theological and religious tenets that subsisted among Protessants in his time at little moment: and it was his wish to promote the well-tended project of Mr. Drury for effecting a reconciliation between the Calvinists and Lutherans.

The character of bishop Bedell was held in high estimation among the Irish, that when the rebellion broke out in 1641, the Catholic bishops of Ireland, it was known to declare, that he would be the last Irishman whom they would expel the country. He had in the county of Cavan an unoffended people for many Protessants who were driven from their own habitations; and he treated them with such humanity and kindness, that the name of the famine found his name there, and was called the Irish bishop's famine. His care was to give them shelter, and to share the fate that awaited them, occasioned his being removed, with his two sons and family, to a remote place in the middle of a lake where they suffered much from the severity of the weather. The bishop and his sons were incessant in preaching and praying with their distressed companions: and their piety inspired the inhabitants and the Irish who guarded them with that respect, that they never disturbed their devotions. At last they were removed from this place to the house of a Protestant minister, and a covert to protestantism, where the bishop was seized with a fever, which terminated his life, July 15, 1642, in the 71st year of his age. At the following of his interment, the Irish attended with great decency, and fired a volley over his grave; exclaiming in Latin, "Requiem in pace ultima Anglorum! May the last of the English be in peace!" And a popular prayer was beseeched on the occasion, is laid to have been paid by him a tribute of respect and veneration, in the following: "O famous men eum Bedell! May my foul be with that of Bedell!"

The character of Bedell, dilthered by Mr. Clegr, who resided in his family, and recorded in bishop Burnet's list of the protestant peers, appears to have been a very eminent one as a man of piety and amiable; so that in the most appropriate sense of the term, he was a patrician and apologetical bishop. He was learned and acute in his habits; his inestimable zeal in clashing at bad credit throughout the whole life of a bishop; his preservation and integrity, displayed however in various ways, and in the most particular occasion at the table of the card of Stratford, which produced the division of the private archbishop Luther, after the bishop had continued long hid, according to his usual manner, "in the church, and you will find good liquor in it": his charity and hospitality, exhibited in the supply afforded to him by many poor Irish families, some of whom he took to Christ a at his own table, and in the liberal relief which the persecuted protestants obtained in his house; his detachment from worldly interest, of which an instance, selected from many more, has been given in the separation of the sees of Kilmore and Armagh; his integrity and humanity, and his pious resignation under all the evils of life, in the obsequies of his humble station, and amid the persecutions which he suffered after the attainments of a higher rank: all these qualities, which have been arply illustrated in the memoirs of his life, exalted his character to the highest degree of professional excellence. His bequests at his death corresponded to the uniform tenor of his life; for out of his very limited fortune he allotted some legacy to every place to which he had any relation. He thus obtained the esteem of the most inferior of his countrymen, and, while he lived, and he has also secured the veneration of posterity, and left a model for the imitation of all his successors. He lived and wrote much on the controversy between the papists and protestants, and he had composed a large treatise in answer to the two questions, adduced by the former to the latter with a kind of triumph: "Where was your religion before Luther? And, What became of your ancestors who died in prosperity?" But this treatise, which the bishop intended to have printed, together with many other MSS., were lost in the conflagration at the times. His Hebrew MS. Bible was preserved, and is now republished by Emanuel college, Cambridge, to which the author bequeathed it.

As bishop Bedell objected to burial in churches, partly because it indicated superstition and pride, and partly because the patrician style of dead bodies annoyed the living, he gave orders for burying his wife in the vault frequented part of the church-yard of Holborn, and directed by his will that he should be placed near her. By his will, who was of the ancient and honourable family of L'Estrange, he had two daughters and two sons, of whom his last surviving him: one provided for by a small benefice of St. Anne, besides the entailed estate of the family in Lincoln, and the other by a small estate of two years, the only purchase made by the bishop.

BEDLINGGIAN, in Domesday, a name given by Avicenna and Seipon to the fomia amoris, or love-apple, a foot of fruit used in food by the Italians, and some other nations, and seeming to be the third kind of the freichkorn, or flesbane, mentioned by Theophilus. That author tells of two kinds of this plant, the one of which occasioned deepy disorders, and the other those people who eat of it into madness. After these, which he properly accounts poisonous kinds, he mentions a third, which was cultivated in gardens, for the sake of the fruit, which, he says, is large and excellent. This is certainly the same the fame with bedlinggian, or fomia amoris.

BEDER, in Ancient Geography. See Beda.

Beda, in Geography, a fortified city of Hindoos, in the territory of the Naxans, about 80 road miles N.W. of Hyderabad; was formerly the capital of a confederate kingdom; and is now celebrated for the number and magnificence of its palaces. 80 lat. 18°. 1 long. 73°.

BEDFORD, Arthur, in Biography, was the son of Richard Bedford, and was born at Toulouse in France, 1668. Having received the rudiments of learning from his father, he was in 1673, at the age of sixteen, admitted a member of Braven Noble college, Oxford, where he acquired some reputation as an orientalist. In 1688 he received holy orders from the bishop of Glenelg. About this time he removed to Brittish, where the mayor and corporation presented him to the vicarage of Temple church. At Brittish he had a few years, devoting a great portion of his time to the reading of Mr. Collier's attack upon the slaters; he was involved in, indeed, in a very brisk controversy with several of the greatest wits and ablest writers of the age, but acquitted himself...
himself with so much force and vivacity, as actually to produce both repentance and amendment, and was a great cause of that decorum which has for the most part been observed by the modern writers of dramatic poetry. From Britain he went to a small living in Somercotshire, where he employed himself in a work on scripture chronology, which, in consequence of Sir J. Newton’s labour, he afterwards relinquished for a time, and was engaged to assist in correcting an Arabic translation of the Painter and New Testament, for the benefit of the poor Christians in Asia. In 1719, he communicated his thoughts to Dr. Charlet, in regard to the foundation of a Syrian professorship at Oxford. The letter which contained there is a most excellent production, and is printed at length in Mr. Ellis’s History of Shoreditch, where he became chaplain to Aske’s hospital, in 1734. About 1730, he renewed his attack upon the stage, particularly directed against a new playhouse in Goodman’s Field, where Garrick made his first appearance. From this period, to the time of his death, we know few particulars of consequence but the 15th of September, 1745, closed a life that had been very useful. Bedfords many single sermons, and his tracts upon the playhouse, his chief publications were, “The Temple of Music,” 1756, 8to. “The abuse of Music,” 1755, 8vo. “Essay on singing David’s Psalms,” 1758. “Animal-versions on Sir Isaac Newton’s Chronology;” 1728, 8vo. “Scripture Chronology;” 1750, 4to. “The Doctrine of Justification by Faith, in Nine Quotations and Answers;” 1741, 8vo: and “History Mathematica;” 1743, 8vo.

Bedford, in Geography, the county town of Bedfordshire, in England, is seated on the banks of the river Ouse, nearly in the centre of the county, at the distance of 51 miles N.W. from London. It is a place of some antiquity, and was called by the Saxons Beda-ford, or Bedican Forda, signifying the fortresses on the ford. At the time of Olla, that powerful king of the Mercians, Bedford was probably of some note, as this monarch directed his corpse to be interred in a small chapel here, which, being seized on the river Ouse, was carried away by the floods during an inundation. In the year 572, a pitched battle was fought here between Cuthwulf the Saxon, and the Britons; when the latter were defeated and driven away, Alfred was obliged to deliver up several of their towns to the haughty conqueror. During the Danish wars, this town suffered materially by the ravages of these plundering marauders; but in the year 911, they were severely beaten, and driven from this neighbourhood. A strong Norman castle was erected here by Pagan de Beauchamp, the third baron of Bedford, who fortified it with a deep intrenchment and lofty wall. “While it stood,” says Camden, “there was no form of civil war which did not burst upon it.” King Stephen laid siege to, and conquered this castle; and, according to Camden, slaughtered the inhabitants; but other historians assert that he granted them honourable terms. During the contests between king John and his barons, it was besieged by the latter, but reconquered again by the forces under Fulco de Breut, to whom it was given by the king as a reward for his services. This rebellious villain occasioned his own destruction with that of the castle, by opposing Henry III., who laid siege to the fortres, and after a contest of sixty days, made himself master of this “nursey of sedition.” De Breut was sent to London and imprisoned, but his brother and twenty-four other knights were executed on the spot. (For an account of this siege, see Beauties of England and Wales, vol. 1. p. 6.) The embankments of the castle form a parallelogram; some of which may be easily traced; but the walls are entirely razed to the ground.

The government of the town is vested in a mayor, recorder, deputy recorder, an indefinite number of aldermen, two bailiffs, and thirteen common councillors. The bailiffs are lords of the manor, and have the right of fishing in Ouse for an extent of nine miles each way from Bedford. Henry III. granted the borough to the burgesses for 40l. yearly: Edward I. feized it for the crown rents, which the burgesses had neglected to discharge. The half renewal of their charter was in the reign of James II. when the mayor and aldermen were removed from their respective offices by a royal mandate, for not electing two burgesses to serve in parliament. The numbers were in consequence chosen by his majesty’s ministers. The right of election is now vested in the burgesses, freemen, and inhabitant householders not receiving alms, amounting to nearly 1400.

This town is seated in a fertile tract of land, called the vale of Bedford, which accompanies the Ouse, and produces abundant crops of wheat, barley, turnips, &c. The land on the north side of the river is a strong clay, that on the south side is much lighter, yet very productive, and its natural fertility is much increased by the overflowing waters of the Ouse. This river flows through, and divides the town, which is connected by a strong old stone bridge. On the centre of this flood the old town gaol, which was taken down about thirty-three years since. The river was made navigable to Lynn in Norfolk, by act of parliament. Bedford contains five distinct parishes, and an equal number of churches, two of which are on the south side of the river, and three on the north side. Of these St. Paul’s is the principal for size and architecture, having a handsome octagonal stone spire. It was collegiate before the conquest. Here are four meeting-houses, appropriated to different religious sects, besides one for the Methodists, and another for Moravians. To the latter is attached a dwelling-house for maiden ladies of this fact, called the single filter’s house.

This town is distinguished by many charitable endowments. The hospital of St. John isiggotip to have been founded in 680 by Robert Depary, who was the first master. It now consists of a master, who is rector of St. John’s, and ten poor men. St. Leonard’s hospital was built and endowed towards the end of the reign of Edward I. The hospital of Gray Friars was founded in the reign of the succeeding monarch by the lady Mahala de Paterhall, who was buried in the cemetery. Mr. Thomas Chritty repaired the old town-hall, founded an hospital for eight poor people, and endowed a charity school for forty children. But the most considerable charity of this town, and one whose augmented revenues have been wonderfully great, was bestowed by Sir William Harpur, whose name and benevolence it perpetuates. This gentleman was a native of Bedford, and made lord mayor of London in 1601. He purchased for 135l. thirteen acres and one rood of land lying in the parish of St. Andrew, Holborn, London. This, with his dwelling-house in Bedford, he gave to the corporation of that town, for the endowment of a school and for appointing young women of the town upon marriage. The annual rent of the above land was only 40l. at first, in 1608 it was leased for forty-one years at the annual rent of 90l. A reverend lease was granted for a further term of fifty-one years at the increased rent of 150l. A number of streets, rows, and courts, were then built on the leased ground, and the annual rent is now 4000l. which in three or four years is expected to increase at least another thousand. In consequence of this almost unparalleled augmentation of revenue, the truces, have applied to parliament for two different acts, to extend the objects of the charity, and regulate the application of the receipts. The school endowed by it is situated near St. Paul’s church, having over the door a statue in white marble of the founder, and a Latin inscription beneath. Besides the above charities a boyl of industry has lately been opened for the reception of all the poor of the five
B E D F O R D.

A new town gaol has lately been erected, and a county gaol is just finished; towards the completion of which the late Mr. Whitbread left a legacy of 500l. This town contains 809 houses and 3948 inhabitants.

Bedford was made a dukedom by Henry the fifth, who constituted John Plantagenet, third son of Henry the fourth, the first duke. After being enjoyed by a Nevill, and a de Hatfield, it was bestowed on John Ruffell, in whose family it still continues. See Sussex.

At Eltow, about one mile from Bedford, was an abbey of Benedictine nuns, founded by Judith, niece to the conqueror. At the dissolution its revenues were valued at £294 12s. 11d. The church of Eltow is a very fine ancient church, with a detached tower. This place gave birth to John Bunyan in the year 1628. His allegory of the Pilgrim's Progress was written during confinement in the county gaol. See Bunyan, Beauties of England and Wales, vol. 1.

Bedford, a township of America, in Hillsborough county, New Hampshire, incorporated in 1739, and containing 598 inhabitants, lies at the west bank of Merrimack river, 56 miles west of Portsmouth.

Bedford, a township in Middlesex county, Massachusetts, containing 523 inhabitants, 15 miles northwesterly from Boston.

Bedford, New, a flourishing town of Bristol county, in Massachusetts, containing 3335 inhabitants, lying at the head of navigation on Acquascot river, 38 miles southward of Boston. N. lat. 42° 41'. W. long. 70° 52'.

Bedford, a township of Westchester county, in the state of New York, containing 2456 inhabitants, including 38 slaves. It lies contiguous to Connecticut, 12 miles N. from Long Island found, and 35 from the city of New York. In the census of 1790, it appeared to have 32 electors.

Bedford, a town on the west end of Long Island in New York, 4 miles N. W. from Jamaica bay, and 6 E. from the city of New York.

Bedford, a village near the Georgia side of Savannah river, 2 miles above Augusta.

Bedford, a county of Pennsylvania, lying on Junatta river, and having part of the state of Maryland on the south, and Hunterdon county north and north-east. It contains 131,124 acres, including 46 slaves; half of its lands is settled, and it is divided into nine townships. Bedford, the chief town of the county, lies on the south side of Raylown branch of the same river, 25 miles E. of Berlin, and 210 W. of Philadelphia. It is regularly laid out, and has a bome gaol, and a market-house, court-house, and record-office built of brick. It was incorporated in 1755. N. lat. 40° 40'. W. long. 78° 55'.

Bedford, a county of Virginia, is separated from this: of America, by the Potomac, and by the Rapids on the east, Botetourt on the west, and Franklin county on the south. It is 34 miles long, 25 broad, and contains 10,531 inhabitants, including 2576 slaves. It is level and good, and it is greatly diversified with hills and valleys. In some parts chalk and gypseum have been discovered. The chief town is New London.

Bedford's bay. See TERRINGTONS LS.

Bedford Cape, is more than 82 leagues E. by N. from the west entrance of Bassin's forts, and the S. E. point of James's island; its latitude is 81° 14' 36", and it forms one of the western limits of Dutch waters.

Bedford Cape, is also the extreme north-east point of the coast of New Holland, opening to the south-west into Endeavour river, in S. lat. 15° 15'. E. long. 145° 15'. The sea to the east and north is almost everywhere full of shoals and reefs.

Bedford Level, is the name given to a large tract of fenny, boggy land in England, which remained a fruitful waste for many ages. It was calculated to contain 400,000 acres, distributed through the several counties of Cambridge, Huntingdon, Northampton, Lincoln, Norfolk, and Suffolk. The chief part of this extensive tract appears, from the various phenomena noticed by different authors, to have been formerly a dry and cultivated land; but other from inundations or embankments, which prevented the waters from the upland-filling at their proper outlets, or from sudden and violent convulsions of nature, it was reduced to the state of a morass: where the waters, stagnating and becoming putrid, filled the air with noxious exhalations; and not only destroyed the health of the inhabitants, but likewise impeded their endeavours to obtain the necessaries of life; the country being almost rendered impassable even to boats, by the fedges, reeds, and slime with which it was covered. The name given to it originated with Francis earl of Bedford, who having large polishing in the fens, mostly granted him by Henry the eighth, the distribution of monasteries, engaged, in conjunction with thirteen other gentlemen, to drain the whole upon the condition of having 95,000 acres in the result of successful accomplishment. These terms were accepted by the commissioners and the country at large, and in 1634 the king granted these adventurers a charter of incorporation. In the course of three years and a half this Herculean task was completed to the satisfaction of the commissioners, who, with the king's surveyor, set out the allotted land to the corporation. Above 100,000l. was expended upon this work. The king, and some persons devoted to his interest, afterwards opposed the right of the earl of Bedford, and dispossessed him of his property. Other persons engaged in the concern, but the civil wars breaking out frustrated all their schemes, and in 1649, William earl of Bedford, the heir and seic ecolor of Francis, was restored by the convention parliament to all the rights of his father. A new act was obtained to repair the decayed works, and extensive operations were adopted. In 1653 the level was adjudged to be fully drained, and after the adventurers had expended 450,000l. more, the 95,000 acres were confirmed to them. In 1697 the Bedford level was divided into three districts, called north, middle, and south; having one surveyor for each of the former, and two for the latter. This distribution, intended for its better government, proved a cause of considerable opposition and contention, and it was many years before the whole was settled in a systematic and equitable manner. To preserve the history of those litigations, charters, and laws, originating in and made for this great concern, would lead us into a narrative too extensive for the limits of our work: we must therefore refer those persons, desirous of further information, to the "Beauties of England and Wales," vol. ii., and to a work recently published, entitled "An Historical Account of the Bedford Level," with the laws, acts, relating to the same, 8vo.

That vast tract was at some former period dry habitable land, is evident from the quantity of trees and various other natural and artificial substances that have been dug from different depths in various spots of it. Daydale, in his "History of Embarking," states that many oak, fir, and other trees, were found in draining the Isle of Axholme. These were at the depths of three, four, and five feet from the surface, lying close to the roots, which were in firm earth below the moor. The bodies or holes of the trees appeared to have been burnt and burnt, and cut down with laws or axes, as the ends of them being rooted do manifest. The oaks were
lying in multitudes, and of an extraordinary size, being five yards in compass, and three or four yards long; and some smaller of a great length, with a great quantity of stones and small turf near them. Other authorities relate similar facts; and Mr. Hallam, in his "Historical Account of the Bedford Level," states that in the year 1792 many roots of trees, standing as the trees had grown, were found near Bolton in Lincolnshire at the depth of eighteen feet below the thin夯实surface. Tacitus, in his life of Agricola, relates, that "the Britons complained of their hands and bodies being worn out and I confounded by the Romans, in claining the woods and embanking the fen." This sentence seems particularly applicable to the forementioned circumstances, and alludes to the period when some great operations of this nature were evinced from the enlivened Britons. The emperor Severus is said to have been the first who introduced the fans with canals: one of which is determined by Diggle as extending about 24 miles from Dover in Norfolk to Peterborough. It was composed of gravel three feet in depth and fifty feet wide, and about five feet beneath the surface. In 1857 some workmen discovered, at eight feet below the bottom of Willesden river, a fford fome feet below, with seven boats lying in it covered with dirt; and at Whittlesea, on digging eight feet beneath the surface, a perfect soil was found with swaths of grass on it; as they lay when first moved. Near Bolton, at the depth of sixteen feet, were discovered a smith's forge, with many of his tools, some horse shoes and other iron articles. Various other things have been found at different times, and in different places, all tending to prove the extraordinary effects that nature has produced here in one of her revolutions. The cause and time of this event are not recorded. Henry of Huntingdon, who wrote in the time of king Stephen, describes this part of the country as then "very pleasant and agreeable to the eye, watered by many rivers which run through it, diversified with many large and small lakes, and adorned with many woods and islands." William of Malmesbury, living in the first year of Henry II. describes the district in glowing colours, as "a very paradisical; for that is pleasure and delight it resembled heaven itself; the very meadows abounding in trees, whose length without knots do emulac the stars. There is not any single place in it; for in some parts thereof there are apple trees; in others vines, which either spread upon the grounds, or run along the poles." From these testimonies it appears that the great inundation of the fans must have occurred after the time of the latter historian. The first attempt at draining them was in the reign of Edward I.; since which time numerous schemes have been proposed, and tried to render this large tract of country fruitful to agriculture.

BEDFORDSHIRE, one of the inland counties of England, bounded on the north by Huntingdonshire and Northamptonshire, on the west by Buckinghamshire, on the south by Hertfordshire, and on the east by the latter, and Cambridgeshire. Its limits are very irregular and artificial, having only two short spaces of the Ouse as natural boundaries on the east and west. This part of the kingdom, with the districts now called Hertfordshire and Buckinghamshire, were inhabited at the time of the Roman invasion, by a tribe of Britons called Cattieuchalani, who's chief or governor Callevallenus, was chosen by unanimous consent to lead them against the arrogant invading Cesar. In the year 310 the emperor Constantine divided this island into five Roman provinces, when Bedfordshire was included in the third division, called Flavia Caesarisiana. At the establishment of the Mercian kingdom it was made part of that government, and continued to till the year 827, when, with the other divisions of the island, it became subject to the west Saxons under Egbert. Alfred having subdivided his kingdom into shires, hundreds, and rythlings, and marked the limits and name of each division, this was called Bedfordshire, since contracted to its present name. Its length is computed at 35 miles, and breadth at 20. It contains an area of about 260,000 acres, which are divided into nine hundreds, containing ten market towns, 124 parishes, 58 vicarages, 550 villages, about 12,000 houses, and nearly 64,000 inhabitants. The face of the country, though not characterised by high hils and deep valleys, is considerably diversified with some inequalities of surface, and on the fottten side is a range of chalk hills. Beneath these is an extensive tract of cold, fertile land. The farther side of the county is mostly sandy and flat, yet, from the improvements adopted and recommended by the duke of Bedford, lord Oliffy, &c. the greatest part is appropriated to some species of agriculture. On the north and north-east the soil is a deep loam, famous from the skill employed in its cultivation, for producing large crops of corn, particularly barley. A large proportion of the land in this county is still cultivated in open or common fields, but within the last five or six years great quantities have been inclosed, and farther inclosures are intended. The chief employment for the lower classes of persons in this county arises from agriculture, making of lace, and the manufacturing of straw hats. In the two latter, numbers of women and children are constantly occupied, and from them derive a bare subsistence. There is no such thing as home lace made in the county, and the fuller's earth pits are all in Buckinghamshire. Bedfordshire is watered by the rivers Ouse and Ivel, and some smaller streams. The former enters the county on the western side, and after a devious course through many fine meadows, falls through the town of Bedford, where it becomes navigable. Flowing easterly it leaves the county at St. Neot's, on the confines of Huntingdonshire. (See Ouse.) The river Ivel rises in Hertfordshire, and falling Baldock and Biggleswade, falls into the Ouse a little above Tempsford.

Bedfordshire is in the Norfolk circuit, in the province of Canterbury, and bishropic of Lincoln. It is crossed by two Roman roads, the Watling-street and the Ichnild-way, and contains some encampments attributed to that people: one at Sandy, near Potton, called Saladun, and another near Dunstable, called Maidon-bower, supposed to be the magicum of Antoninus. The duke of Bedford has a magnificent seat at Woolham Abbey in this county. Laton Fleo, the marquis of Bute's; Ampthill Park, lord Oliffy's; and Wreell-hone, lady Lucas's, are very fine seats in the county. Beauties of England and Wales, vol. 1. BEDRUM, or BEERSON, in Ancient Geography, a town of Africa, in the interior of Libya. Ptolemy. BEDKA, in Geography, a town of European Turkey, in the Sangkhilh of Belgrade, seated on the Kolhura.

BEDMORE, or BIDDANOR, a fine province of Hindostan, lying north-west of the Myfere country, and deriving its name from Bedmore, the capital. Hyder Ally took possession of this province about the year 1763; and it was afterwards comprehended within the dominions of his son Tippoo Sultan, who styled himself regent of Myfere, and who retained it till the time of his death in 1799, when, after the capture of Serangapatam by the British troops, his dominions were distributed among the conquerors. Part of Biddanore was assigned to the Mahattas; the sons and relations of Tippoo were removed into the Carnatic; and a descendant of the ancient rajahs of Myfere, about five years old, was placed upon the throne, under certain conditions.

BEDNOR, a city of Hindostan, and capital of the foregoing province. N. lat. 15° 47'. E. long. 75° 7'.

BEDNOR,
BED

BEDOUINS, or Bamaraws, is Arabic Bedowen, formed of bed, desert, or country without habitations, a denomination given to a wandering tribe of Arabs, who retain the customs and manners of their ancestors, the "Arab Scimitar," and who are said to be descended from Ishmael. They originate from the deserts of Arabia, where they live in tents, and are separated into distinct tribes, subject to their sheiks, who direct and superintend in every transaction: and they have migrated with their flocks and herds, from Egypt and Syria, and other countries both of Arabia and Africa, inhabiting the vault deserts which extend from the confines of Peria to Morocco. They select their spots which afford them fporigs and pastures, and they are in the streeted fews a race of rovers and wanderers, without any permanent abode.

Although they are divided into dependent communities, or tribes, not infrequently hostile to each other, they may still be considered as forming one nation. The resemblance of their language is a manifest token of this relationship. The only difference that exists between them is, that the African tribes are of a latit, or shifting origin, being pertain to the conquest of these countries by the caliphs or successors of Mahomet; while the tribes of the desert of Arabia, properly so called, have been defecled by an uninterrupted succession from the remotest ages.

The Arab, says Mr. Welby, seems to be especially condemned to a wandering life, by the very nature of their deserts. To paint him short, these deserts, the reader must imagine a large soil perpetually inflected, and without limits, immense and boundless plains, without houses, trees, rivulets, or hills, where the eye frequently meets nothing but an extensive and uniform horizon like the sea, though in some places the ground is uneven and rocky. Almost invariably naked in every hide, the earth supplies nothing but a few wild plants thinly scattered, and thickets, a solitary is rarely disturbed but by antelopes, hares, locusts, and rats. Such is the nature nearly of the whole country, which extends 600 leagues in length, and 360 in breadth, and stretches from Aleppo to the Arabian sea, and from Egypt to the Persian gulf. The soil, however, varies considerably in different places; and this variety is the qualities of the soil is produced by remote differences in the composition of the deserts. In the more fertile countries, or those which are situated in low plains, the tribes are free and very independent, which is the rule in the desert of Sinai, that of the Red sea, and the interior of the Great Desert, called the Najd. Where the soil is more fruitful, as between Damascus and the Euphrates, the tribes are more numerous and less distant from each other; and in the cultivable districts, such as the province of Aleppo, the Hauran, and the neighbourhood of Gaza, the camps are frequent and contiguous. In the former case the Bedouens are nearly paddors, and seldom only on the produce of their herds, and on a few dates and flax-men, which they eat, other fresh, or dried in the sun, and reduced to a powder. In the latter they live on land, and add cheeses, barley, and even rice to their flesh and milk. Such is the situation in which nature has placed the Bedouens, to render them a race of men equally regular in their physical and moral character. This gentleman is so striking, that even their sects, their customs, and their modes of dress, are extraordinary things; especially their tribes which dwell in the depths of the deserts, such as those of Amaza, Kairas, Tai, and others, which never approach the cities. In general, the Bedouens are fierce, meagre, and ramsey; mere bed, however, in the heart of the desert, than on the frontiers of the cultivated country; but they are always of a darker complexion than the neighbouring peasants. They also differ among themselves in the same camp: the sheiks, that is, the rich, and their attendants, were always taller, and more corpulent than the common clans. Some of them are more than five feet five inches high; though in general they do not exceed five feet two inches. This difference can only be attributed to their food, with which the former are more abundantly supplied than the latter. The Bedouens of the lower clans live at a rate of habitual want and famine; and it is an undoubted fact, that the quantity of food consumed by each of them does not exceed six oun ces a day. This situation is most remarkable among the tribes of the Najd and the Hezir. Six or seven days foaked in melted butter, a little fresh milk, or curds, serve a man a whole day, and he thinks himself happy when he can add a small quantity of cake flour, or a little ball of rice. Meat is referved for the greatest festivals, and they never kill a kid but for a marriage or a funeral. A few wealthy and generous sheiks only can kill young calves, and eat baked rice with their victuals. In times of dearth, the vulgar, half-starved, eat locusts, rats, lizards, and serpents, which they breed on boards.

It has been already observed, that the Bedouen Arabs are divided into tribes, which constitute so many distinct nations. Each of these tribes appropriates itself to a certain tract of land, and is collected in one or more camps, which are dispersed through the country, and which make a successful progress over the whole, in proportion as it is exhauled by the cattle. Such is the law among them, that if a tribe, or any of its subjects, enter upon a foreign territory, they are treated as enemies and robbers, and a war ensues. Moreover, as all the tribes have affinities to each other by alliances of blood or treaties, leagues are formed which render these wars more or less general. As soon as the offence is made known, they mount their horses, and seek the enemy; when they meet, they enter into a parley, and the dispute is frequently compromised; if not, they attack either in small bodies, or man to man. They encounter each other at full pace with fixed lances, which they sometimes dart, notwithstanding their length, at the flying enemy; the victory is rarely contested; it is decided by the flight, and the ensanguined fly off at full gallop over the naked plain of the desert. The tribe which has been defeated fleares its tents, removes by forced marches to a distance, and seeks an asylum among its allies. The enemy, satisfied with their success, drive their herds further on, and the fugitives from after return to their former situation. Differences, however, are often perpetuated by the slaughter that is made on the occasion; and they have established laws among themselves, that the blood of every man who is slain must be avenged by that of his murderer. This vengeance is called "Tar," or retaliation; and the right of exacting it devolves on the nearest of kin to the deceased. If any one neglects to seek his retaliation, he is for ever disgraced. He therefore watches every opportunity of revenge. If his enemy perishes in any other way, he seeks satisfaction by inflicting vengeance on the nearest relation. These amenities are transmitted, as it were by inheritance, from father to children, and never cease but by the extinction of one of the families, unless they agree to sacrifice the criminal, or purchase the blood for a flated price, in money or in flocks. Such being the condition of society, most of the tribes live in an habitual state of war; and this circumstance, together with the mode of life, render the Bedouens a military people, though they have made no great progress in war as an art. Their camps are formed in a kind of irregular
gular circle, composed of a single row of tents, with greater or less intervals. These tents, made of goat's or camel's hair, are black or brown, or striped black and white, and thus differ from those of the Turkans, which are white. They are stretched on three or four pickets, only five or six feet high, which gives them a very flat appearance; so that at a distance one of these camps appears like a number of black spots. To the colour of these tents, says Dr. Shaw, there is a beautiful allusion, (Cant. i. 5) "I am black, but comely like the tents of Kedar." For nothing, adds this writer, can afford a more delightful prospect than a large extensive plain, in its verdure, or even scoarched up by the sun, with these moveable habitations, situated in circles upon them. These tents are the same with the tents of the ancients called "Mapalai," (Sil. Ital. i. 925; Lucan. i. 354) and are represented by Saluti, (Bell. Jug. § 21) as remem-
bering the bottom of a ship turned upside down. The length of these tents is much greater than their breadth; and they are entirely open on one of their long sides, that is sheltered from the wind, and on that which is exposed they are closed. The tent of the sheik is in some of their encampments distinguished from the others merely by a large plume of black or yellow feathers placed upon its top. Each tent, inhabited by a family, is divided by a curtain into two apart-
ments, one of which is appropriated to the women. In these tents the Bedoweens, when they take their rest, lie stretched out upon the ground, without bed, mattresses, or pillow; wrapping themselves in their hykes or blankets, and lying upon a mat or carpet, in any part of them, where they can find room. A number of these tents, from 10 to 300, are ar-
ranged in a circle, and called Dourar. The empty space within the large circle serves to fold their cattle every evening. As the shade of trees is very agreeable in torrid regions, the Bedoweens in the desert take pains in selecting shaded si-
focations for their encampments: but those of Egypt encamp on spots defilite of trees; and when any happen to be there, it is no consideration with them in the pitching of their tents. They never have any entrenchments, their only advanced guards and patrole are dogs: their horves remain saddled and ready for being mounted on the first alarm; but being strangers to all order and discipline, these camps, always open to surprise, afford no defence in case of an attack. Ac-
cidents, therefore, frequently happen, and cattle are carried off every day. The tribes which live in the vicinity of the Turks, are still more accustomd to alarms and attacks; for these strangers arrogating to themselves, in right of con-
quest, the property of the whole country, treat the Arabs as rebel vassals, or as turbulent and dangerous enemies; and on this principle they never cease to wage secret or open war against them. The Arabs, on their side, regarding the Turks as usurpers and treacherous enemies, watch every oppor-
tunity to do them injury. On the slightest alarm, the Ar-

buses, confounding the innocent with the guilty, cut their harvets, carry off their flocks, and intercept their communica-
tion and commerce. These depredations produce a misunderstanding between the Bedoweens and the inhabit-
ants of the cultivated country, which renders them mutual enemies. Such is the external situation of the Arabs.

As to their internal constitution, each tribe is composed of one or more principal families, the members of which have the title of sheiks, that is, chiefs or lords. One of these sheiks has the supreme command over the others. He is the general of their little army, and sometimes assumes the title of "Emir," which signifies commander and prince. The more relations, children, or allies he has, the greater is his influence. To these he adds other adherents, whom he attracts to himself by supplying their wants. Besides, a

number of small families, who, not being strong enough to maintain their own independence, and needing alliances and protection, range themselves under the banner of this chief. Such an union is called "Kabila," or tribe. These tribes are distinguished by the names of their respective chiefs, or by that of the ruling family; and when they speak of any of the individuals that compose them, they call them the "children of such a chief;" as, e. g. "Beni Temin," "Oulad Tai," the children of Temin and of Tai.

The sheiks and their subjects are born to the life of sheep-

herds and soldiers. The more considerable tribes rear many camels, which they either sell to their neighbours, or employ in the carriage of goods, or in their military expeditions. These smaller tribes keep flocks of sheep, and among the tribes which apply to agriculture, the sheiks live always in tents, and they leave the culture of their ground to their subjects, whose habitations are wretched tents. The peculiar distinctions which characterize their different tribes result from their different modes of living. The genuine Arabs disdain husbandry, as an employment by which they would be degraded. They maintain no domestic animals but sheep and camels, except, perhaps, horses. These tribes which are of a pure Arab race, live on the flesh of their bufaloes, cows and horses, and on the produce of some little ploughing. The former tribes, distinguished as noble, by their possession of lands, are denominated "Abel Ahsar;" and the second "Mooran," which are esteemed a middle clafs, between genuine Arabs and peasants. These are sometimes men-
tioned contemptuously, because they keep bufaloes and cows. The "Mooran," transport their dwellings from one country to another, as pasture fails; so that a village springs up suddenly in a situation where, on a preceding day, was not to be seen a single tent. The genuine Bedoweens, living always in the open air, have a very acute smell; and the feit exhalations produced by cities are one cause of their dislike of them. So acute is their smell, that, according to Niebuh, if they are carried to the spot from which a camel has strayed, they will follow the animal by filelling its track, and distinguishing the traces of its footsteps from those of other animals that have passed the same way. These Arabs who wander in the desert will fulfill five days without drinking, and discover a pit of water by examining the foal and plants in its environs. Like other people that lead an erratic life, they are addicted to robbery, and of course are formidable enemies to those who traverse the deserts; but they never murder those whom they rob, unless travellers in their own defence should chance to kill a Bedoween, in which case the others are eager to revenge his death. Upon all other occasions they act in a manner consistent with their natural hospitality. Of their hospitality Niebuh has recorded several very pleasing instances. The pulling of the car-

vans, he says, is not always owing merely to their propensity for robbing, but their expeditions for this purpose are commonly co~sidered by themselves as lawful hostilities against enemies, who would defraud the natives of their dues, or against rival tribes, who have undertaken to protect those illegal traders.

The government of the Bedoweens is at once republican, aristocratical, and even despotic. It is republican, as the people have great influence, and nothing can be transacted without a majority; it is aristocratical, because the families of the sheiks possess some of the prerogatives which every where accompany power; and it is despotic, because the principal sheik has an indefiniteness, and almost absolute authority, which he may abuse; though the rate of the tribes confines this abuse within very narrow limits; for if he should kill an Arab, it would be almost impossible for him to escape.
escape punishment, and the law of retaliation would be in
force. His subjects, harried by severity, would abandon
him and join another tribe; his own relations would depose
him, and advance themselves to his station. The dignity of
the sheik is hereditary, but not confined to the order of
princely; the petty sheikhs, who form the hereditary nobi-
lity, clasp the grand sheik out of the reigning family, with-
out considering his immediate relation to his predecessor.
Little or no revenue is paid to the grand sheik. In fact, the
principal sheik in every tribe defrays the charges of all
who arrive at or leave the camp. His rank subjects him to
great expense by the entertainment of his allies, and of the
principal men, who assemble to deliberate concerning enc
campments and removals, peace and war, and the litigations
between individuals. To these he must give coffee, bread,
baked on the ashes, rice, and sometimes roasted kid or em-
nel. In a word, he must keep open table. Of his gener-
osity depend his credit and his power. To provide for these
expenses, the sheik has nothing but his lands, a few spots of
cultivated ground, the profits of his plunder, and the tribute
he levies on the high roads, the total of which is very in-
considerable. The most powerful sheikhs among the Bed-
oueens, though sometimes denominated princes and lords,
may be compared to substantial farmers, whose simplicity
they resemble in their dress, as well as in their domestic
life and manners. A sheik, who has the command of 500
horses, does not disdain to faddle and bridle his own, nor
to give him his barley and chopped straw. In his tent, his
wife makes the coffee, kneads the dough, and superintends
the dressing of the victuals. His daughters and kinswomen
wash the linen, and go with pitchers on their heads, and
veils over their faces, to draw water from the fountain.
These manners agree precisely with the description in Ho-
mer, and the history of Abraham in the book of Gene-

The simplicity, or rather poverty of the lower clans of
the Bedoueens, corresponds to that of their chiefs. The
whole wealth of a family consists of moveables, of which the
following is a pretty exact inventory. A few male
and female camels, some goats and poultry, a mare with her
bride, and faddle; a tent, a blanket, a crooked staff, a
rathy mule, with a fillet or martlet, a pipe, a portable mill, a
pot for cooking, a leather bucket, a small coffe-roaster, a
fow split, which serves equally for a seat, a table, and a bed,
some clothes, which are put up in leather bags hung up in
their tents, a mantle of black woolen, and a few glafs or silver
rings which the women wear upon their legs and arms. But
the principal and most important article in the possession
of a Bedouen is his mares, which serve in making his ex-
cursions against his tribe, or stroking plunder in the
country or on the highway. The mares is preferred to the
horse, because, as Volney, Ciecher, and others say, she
does as much, is more docile, and yields milk, which once
often feeds the third, and even the hunger of her master.

The Bedouen of the desert prefers their butter in a
leather bag, and their water in goat skins. Their hearth
consists of a hole made in the ground, and lid with flores;
instead of an oven they use an iron plate in preparing
their bread, which is made in small cakes. In their exter-
iments, they carry with them a tappery of meal, and
their other provisions are dates, milk, cheese, and honey.
They are diluted much like their brethren in Egypt, ex-
cept that they wear flaps of unstreched leather, and of a
peculiar shape; and that many of them walk bare-footed
over the scorching sand, which renders their skin at length
insensible. Their women appear less fby and scrupulous
than the other females of the eath, converse more freely
with strangers, and expose themselves with their faces un-
veiled.

The arts of the Arabs, whose wants are few, consist in
weaving their clumsy tents, and in making mats and but-
ters. Their whole commerce only extends to the exchanging
of camels, kids, filations, and milk, for arms, clothing,
animal, a little rice or cotton, and money, which they bury.
They are totally ignorant of all science, and have not
even any idea of astronomy, geometry, or medicine. They
have not a single book; and nothing is so uncommon
among the sheikhs as to know how to read. Their whole
literature consists in reciting tales and histories, in the
manner of the Arabian Nights Entertainments. For such
stories they have a peculiar passion; and in the evening
they feast themselves on the ground, at the door of their
tents, or under cover, if it be cold, and there, ranged in a
circle, round a small fire of dung, with their pipes in their
mouths and their legs crossed. After indulging for some time
in silent meditation, they amuse themselves with the recital of
tales of this kind. They have likewise, besides their love-stories,
their love-dreams, which have in them more nature and senti-
ment than those of the Turks and the inhabitants of the
towns.

It has been observed, that the Bedouen, though their con-
dition is the depths of the desert, resembles, in many respects,
that of the savages of America, have not the same force.
So that, accustomed to endure hunger, they have never been
addicted to the practice of eating human flesh; and their man-
ners are in general much more sociable and mild. Volney
attributes this difference of manners to the difference of their
situation. The American savages have been induced by the nature
of their country to become hunters rather than shepherds; and
their habits have contributed to produce and cherish a fer-
city of character. But the Bedoueens, whose naked plains,
without water or forests, are dotted with hills and groves,
and possessing the camel, have been determined to a pastoral
life, and hence they have acquired manners which have influ-
enced their whole character. Finding at hand a light, but con-
stant and sufficient nourishment, they have acquired the
habit of frugality. Content with the milk of the camel and
dates, they have not defined flesh; they have had no blood;
their hands are not accustomed to slaughter; nor their ears
to the cries of suffering creatures, and they have preferred a
peaceable and humane heart. Nevertheless, when the Arab
shepherd became acquainted with the life of the horde, his
lust of life was considerably changed. The facility of
palling over extensive tracts of country rendered him a war-
derer. He became greedy from want, and a robber from
greediness; and such is his present character. A plunderer
rather than a warrior, the Arab possesses no language, con-
geny; he attacks only to defend; and if he meets with ref-
nunciation, he will take a small booty, in order to put in com-
petition with his life. To irritate him, you must fill his blood,
and then he is found to be an obdurate in his vengeance,
he was cautious in avoiding danger. The spirit of rapin,
with which the Arabs have been often reproached, is ex-
ercised only towards reputed enemies, and is accordingly
founded on the acknowledged law of almost all nations.
Among themselves they are remarkable for a good faith, a
humanity, and a generosity, which would do honour to the
most civilized people. What each more nobly than the
right of asylum to protected among all the tribes? A
stranger, may even an enemy, touches the tent of the Bed-
ouen, and from that instant his person becomes inviolable.
It would be reckoned a disgraceful manners, an unforgivable

to satisfy even a just vengeance at the expense of hospitality. Has the Bedoween contented to eat bread and salt with his guest, nothing can induce him to betray him. The power of the Sultan himself would not be able to force a refugee from the protection of a tribe but by its total extermination. The Bedoween, so rapacious without his camp, has no sooner set his foot within it, than he becomes liberal and generous. What little he possesses he is even ready to divide; and when he takes his repast, he takes his seat at the door of his tent, in order to invite passengers; and this act of generous hospitality he regards as a matter of duty; and of course he himself takes the same liberty with others. So far does this reciprocal generosity prevail, that one would imagine that Arabs poffesed all their goods in common. Nevertheless, they are no strangers to property; but without that selfishness which the increase of the imaginary wants of luxury has given it among polished nations. Among the Arabs there exist a kind of equality in the partition of property, and a variety of conditions, which have appeared, says Volney, to the wisest legislators as the perfection of human policy. From this state of things, it becomes difficult for their sheikhs to form a faction for enlaying and impoverishing the body of the nation. Each individual, capable of supplying all his wants, is better able to preserve his character and independence; and private property becomes at once the foundation and bulwark of public liberty. This liberty extends even to matters of religion. Whilst the Arabs of the towns crouch under the double yoke of political and religious delopinfy, those of the desert, or the Bedoween, live in a state of perfect freedom from both. On the frontier of the Turks, indeed, the Bedoween from policy preserve the appearance of Mahometanism; but so relaxed is their observance of its ceremonies, and so little fervour has their devotion, that they are generally considered as infidels, who have neither law nor prophets. They scruple not to say, that the religion of Mahomet was not made for them; for, they add, "how shall we make ablutions, who have no water? How can we bellow goats, who are not rich? Why should we fast in the Ramadan, since the whole year with us is one continued fast? And what necessity is there for us to make the pilgrimage to Mecca, if God be present everywhere?" In short, every man acts and thinks as he pleases; and the most perfect toleration is established among them. Volney observes, that there are few polished nations, whose morality is, in general, so much to be esteemed as that of the Bedoween Arabs. If this be the fact, we may reasonably ascribe it to a variety of circumstances altogether independent of that singularity which he mentions in connection with it, and which serve to counteract its effects. Among these Bedoween, as well as the Turk¬men and Curds, religion is the free from external forms, inasmuch that no man has ever seen among these classes of people either priests, temples, or regular worship. We can scarcely imagine, that even Mr. Volney himself, though we are not unapprized of his mode of thinking on the subject of religion, would presume to ascribe the excellence of the morality of these tribes to their total want or diffu¬e of all the outward means of producing and maintaining it; but he would probably sug¬ge t the inefficacy, in a moral view, of those forms and modes of worship which are established and practiced among the Mahometans. The manners of these people are preferred pure and sim¬ply, and such as are described in their ancient histories, as Sosmine observes, by the absence of luxury and fac¬titious pleasures, bringing immorality in their train, which have made no attempt to fix their abode on the parched and barren lands occupied by the Bedoween.

The Bedoween, who live in tents in the desert, have never been subdued by any conqueror, but those who have settled near towns, and fertile provinces, are reduced, in fame measure, to a state of dependence on the sovereigns of those provinces. Such are the Arabs, in the different parts of the Ottoman empire; some of whom pay a rent or tribute for the towns or paturages which they occupy; and others frequent the banks of the Euphrates only in one season of the year, and in winter return to the desert. These last acknowledge no dependence on the Porte, neither are, properly speaking, subject to the Turks; but the police of the latter occasions frequent, but neither long nor bloody, wars among the Bedoween. Whenever the Turks interfere in their quarrels, all the tribes combine to repel the common enemy of the whole nation. Every grand sheikh considers himself as absolute lord of his whole territory, and accordingly exacts the same duties upon goods carried through his dominions as are levied by other princes. The Europeans, therefore, are wrong in supposing the sums paid by travellers to the grand sheikhs to be merely a ran¬som to redeem them from pillage. The Turks, who send caravans through the desert to Mecca, have submitted to the payment of these duties, paying a certain sum annually to the tribes who live near the road to Mecca; and these in return keep the wells open, permit the passage of mer¬chandise, and escort the caravans. If the Bedoween sometimes pillage these caravans, the haughty peridious conduct of the Turkish officers is always the first cause of such holi¬ties. The tribes of Bedoween on the confines of the desert, are those who have preferred the national character in its greatest purity, and who have maintained their liberty unimpaired. Of these, that denominate "Beni Khaled" is one of the most powerful, on account of its conquests and wealth, and the number of other tribes subject to it. It has advanced from the desert of Nedsed to the sea, and conquered the country of Lachfa. That of the tribe of "Kish" inhabits the plains from the Persian Gulf, and rarely encamps. These have possessions in the province of Ghafitan in Per¬sa, in which province there are five different considerable tribes of independent Bedoween. The tribe of the "Beni Lam," inhabiting between Korai and Bagdad, upon the banks of the Tigris, receive duties upon goods carried from Baffora to Bagdad, and sometimes pilage caravans. "The Montel¬fek," or "Montefik," are the most powerful tribe north from the desert, with respect to extent of territory and number of subaltern tribes, acknowledging their authority. They pillefs all the country on both sides of the Euphrates, from Korai to Arjfe. The Arabs of this tribe often plunder travellers passing between Helle and Baffora, and are frequently chastised by the pacha of Bagdad, who de¬poses their sheikh, and substitutes another in his room. This tribe derives its appellation from one Montefik, who came from Gedass, and was descended from a family, illustrious before the days of Mahomet. All these tribes, that live on the confines of the desert, are genuine Arabs, who breed sheep and camels, and live in tents. This, however, is the case with respect to the reigning tribes; though some of the subaltern ones have lost their nobility, by intermixing the practice of agriculture with the habits of pastoral life. The rich plains of Melopotamia and Assyria, which were once cultivated by a populous nation, and watered by fur¬prising efforts of human industry, are now inhabited, or rather ravaged, by wandering Arabs. The lands between the Tigris and the Euphrates are occupied by tribes prac¬tising agriculture, or "Moxdan." All travellers complain of the robberies of the Bedoween of Assyria. This and thievish disposition of these people seems to increase the farther they recede from their native deserts, and to ap¬
approach the country inhabited by the plundering Curds and Turkmens. The pachas of Syria are as much interested in guarding against the depredations of the wandering Arabs, as the Turkish governors on the Persian frontier. As it is of great consequence to the cities of Aleppo and Damascus (which lie) that their caravans travelling to Bagdad or Bafturn should be suffered to pass in safety through the desert, the pachas, in order to protect them from insult and pillage, artfully venture to employ one tribe of Arabs against the other; and with this view they give the title of Emir to the most powerful sheik in the neighbourhood. To him they pay an annual sum, or the produce of a certain number of villages, for guiding the caravans, for keeping the other Arabs in awe, and for levying the dues from those who feed their cattle on the pacha's grounds. The most powerful tribe near Aleppo, is denominated "Maulabi," besides which there are many other tribes, amounting to twenty, or more, who pay a trifling sum to the Emir for liberty to hire out or sell their camels, and to feed their cattle through the country. Other tribes pay a tax for the privilege of gathering falt in the "Defert of Salt." In the vicinity of Damascus there are numerous tribes, one of which, named "Abu Salibe," it is said, consists solely of Christians. The greatest tribe in the desert of Syria is that called "Amife," which is spred into Nedsjed, and reckoned the most numerous tribe in the heart of Arabia. The caravans of Turkish pilgrims pay the Bedowees of this tribe a considerable duty for their free passage through the country; when dissatisfied, they plunder the caravans, and they often make war on the pacha of Damascus. The Bedowees, who occupy those countries that are usually comprehended under the appellation of "Arabia Petraea," or the deserts that lie between Egypt, Syria, and Arabia, properly so called, are distributed into several tribes which wander among dry sands and rocks, seeking some few interperfed spots, that afford scanty food for their cattle. The Arabs of Palistine seem to be poor neglected hordes, who inhabit barren and dismal country; and the pilgrims that visit the Holy Land have given exaggerated relations of the molestations and injury which they have suffered from them.

Of the Bedowees, there are several tribes, who arrive every year in Egypt after the inundation, from the heart of Africa, to profit by the fertility of the country, and who in the spring retire into the depths of the desert. Others of these are nomad tribes, who live in the desert, and which they follow, and assail, in the same manner and customs. Ignorant and poor, they preserve an original character distinct from surrounding nations. Peaceful in their camp, they are everywhere also in a habitual state of war. Some of these, dispersed in families, inhabit the rocks, caverns, ruins, and sepulchred places where there is water; others roamed in tribes, encamp under low and sandy tents, and pass their lives in perpetual migration. Some in the first instance sonne times in the backs of inns; having no other attachment to the soil, fly wherever nature or the indulgence of their flocks. The Bedowees, whom they plunder hate them; the travellers, whom they despise, speak ill of them; and the Turks, who dread them, endeavour to destroy and corrupt them. It is calculated that the different tribes of them in Egypt might form a body of 30,000 horsemen; but these are so dispersed and dilutated, that they are only considered as robbers and vagabonds. The young women among the Bedowees of Egypt might be reckoned not defifute of beauty, but Semites; though they have a tawny hue, and indubitable countenances, not easily reconcilable to the eyes of a European, which they painfully mark on the lower part of the face with a needle, and a black dye. The men are, in general, very handsome.

A simple and uniform mode of life, uninjured by excess, prolongs their existence to the period fixed by nature. They live to be very old, and at an advanced age, they are remarkable for their truly general and patriarchal physiognomy. Those, however, who are wandering, predatory, and wretched, are for the most part of a slender frame and mean appearance.

Some of the Egyptian Bedowees have among them a tradition, that their ancestors were Europeans and Christians, one of whose ships having been wrecked on the coast of Egypt, the crew had been plundered, and reduced to the necessity of living in the desert. The only remnant they have of the supposed Christianitv of their forefathers is the sign of the cross, which they traced with their fingers upon the sand. In the plans that have been adopted in Egypt, under Ali Bey, for preventing robbery and establishing public tranquility, the extermination of the Bedowees has been a principal object. Several hordes fell victims to the policy of the governor; and whole tribes retired into the desert. However, the people of Egypt, far from approving these means of protecting their property, murmured aloud at the scarcity of camels, sheep, and other animals, with which the Bedowees had been accustomed to supply them in great abundance, though it was their practice to steal the property which they had for. It has since appeared, that the prosperity of Egypt is intimately connected with the preservation of the Bedowees.

To the above accounts of the Bedowees, extracted from modern travellers, we shall subjoin the description given of their ancestors above 1800 years ago by Diodorus Siculus, l. xix.

"The wandering Arabs dwell in the open country, without any roof. They themselves call their country a solitude. They do not chuse for their abode places abounding in rivers and fountains, lest that allurement alone should draw enemies into their neighbourhood. Their law or their custom forbids them to low corn, to plant fruit-trees, to make use of wine, or to inhabit houses. He who should violate these usages would be punished infallibly with death, because they are persuaded, that whoever is capable of subduing himself to such conveniences, would soon submit to the yoke in order to preserve them some lead their camels to graze, some their sheep. The latter are the wealthiest; for, besides the advantages they derive from their flocks, they go to sell in the far-points frankincense, myrrh, and other precious aromatics, which they have received in exchange from the inhabitants of Arabia Felix. Extremely jealous of their liberty, at the news of the approach of an army, they take refuge in the depth of the desert, the extent of which serves them as a rampart. The enemy, in fact, perceiving no water, could not dare to traverse them, whilst the Arabs, being furnished with it by means of vell is concealed in the earth, with which they are acquainted, are in no danger of this want. The whole field being composed of clayey and soft earth, they find means to dig deep and vast cisterns, of a square form, each side of which is the length of a acre. Having filled them with rain-water, they close up the entrance, which they make uniform with the surrounding ground, leaving some imperceptibletoken, known only to themselves. They accustom their flocks to drink only once in three days, so that when they are obliged to fly across these parched sands, they may be habituated to support thirst. As for them-
themselves, they live on flesh and milk, and common and ordinary fruits. They have in their fields the tree which bears pepper; and a great deal of wild honey, which they drink with water. There are other Arabs who cultivate the earth. They are tributary, like the Syrians, and resemble them in other respects, except that they do not dwell in houses. Such are pretty nearly the manners of this people." Volney's Travels in Egypt and Syria, vol. i. Niebuhr's Travels through Arabia, &c. vol. ii. p. 183. Somnian's Travels in Upper and Lower Egypt, p. 393. Savary's Letters in Egypt, vol. ii. p. 274, &c. See Arabia.

BED, or Bedder Houjfine, in Geography, a place of Arabia, 20 miles from Medina, and 40 from Mecca, lying in the high road of the caravan of Egypt. The fertile vale of Bedr is rendered famous by the battle fought between Mahomet and the Koreifh of Mecca, in the second year of the Hegira, A. D. 623. In this vale Mahomet was informed by his freedmen of the caravan that approached on one side, and of the Koreifh, consisting of 100 hore, and 80 men, who advanced on the other. After a short debate, the holy prophet sacrificed the prospect of wealth to the pursuit of glory and revenge, and a light intermarch was formed to cover his troops, and a stream of fresh water that glided through the valley. "O God," he exclaimed, as the Koreifh descended from the hills, "O God, if these are destroyed, by whom wilt thou be worshipped on the earth! Courage, my children, close your ranks; discharge your arrows, and the day is your own." At these words he placed himself, with Abu'lbeaker, on a throne or pulpit, and instantly demanded the succour of Gabriel and 3000 angels. His eye was fixed on the field of battle; the Musulmans fought and were prifoners; in that decisive moment the prophet started from his throne, mounted his hore, and called a handful of fan into the air: "Let their faces be covered with confusion." Both armies heard the thunder of his voice; their fancy beheld the angelic warriors; the Koreifh trembled and fled; feventy of the bravest were slain; and seventy captives adorned the first victory of the faithful. The dead bodies of the Koreifh were depoifed and infulted; two of the most obnoxious prifoners were punished with death; and the random of the others, 4000 drams of silver, compensated in some degree the efcape of the caravan. Herbelot. Bib. Orient. p. 180. Gibbon's Hist. vol. iv. p. 360.

BEDRIACUM, in Ancient Geography, a village of Italy, situate, according to Tacitus, between Verona and Cremona, or about 16 miles from the confluence of the Po and Bib. Clavier places it between Cremona and Mantua, and supposes it to have been the present Caneto, a large village on the left of the Oglio. M. d'Aulville thinks that it was the place now called Cividale on the right side of that river. It is famous for two battles fought within a month by Romans against Romans, A. D. 69; in the first of which the emperor Galba was defeated by Otho, and in the second Otho was defeated by Vitellius.

BEDRIEGER, Groote Bedrieger, in Ichthology, a name given by some to the Parnus infidius of Pallas and Gmelin. Vide Rynich, authors &c. BEDRIP, or Bedre, or Bedrepe, the culinary service which inferior tenants anciently paid their lord, by cutting down his corn, or doing other work in the field. The word is formed from the Saxon bidon, to pray, and reft, to reap, or cut corn.

BEDROLA, in Geography, a town of Spain, in Arragon; 8 leagues from Sanguesa.

BEDSTRAW, in Botany. See Galium.

BEDUSTA, in Ancient Geography, the ancient Hindoo name of the river Hydaspes, or the modern Behut.

BEDWIN, Great, in Geography, is an ancient borough town situated on the eastern side of the county of Wilts, in England; at the distance of 70 miles west of London, and 17 miles north from Salisbury. It is an ancient borough by prescription, and sent members to all the parliaments of Edward the first. During some parts of the frequent reigns, it intermitted sending; but from the 9th of Henry V., two members have constantly represented the borough. These are elected by about eighty persons who poifefs freeholds, or inhabit ancient burgage-houses. The town is governed by a port-reve, affifted by a bailiff, and some inferior officers, all of whom are chosen by the former. Bedwin had formerly a market on Tuesday, but this has been discontinued for some years, in consequence of its proximity to the larger market town of Marlborough.

Dr. Stukeley and some other antiquaries have given to this place the honours of a Roman station, and a Saxon city; but there is little proof or probability, that it was ever the former. There are some encroachments remaining on a hill fourth of the town, where it is said Oliver erected a caflle, and where he pitched himself as viceroy of Wilthire and Berkshire. Towards the end of the seventh century, a severe and destructive battle was fought near this town, between Wulfdhere, king of Mercia, and Edmen, a powerful Saxon nobleman, when, as Mr. Turner in his Anglo-Saxon History, characteristically observes, "mutual destruction was more confpicious, than the decision of the battle."

The church of Bedwin is a large ancient structure, built mostly with flats, and shaped in the form of a crofs. Among the monuments it contains, is one to Sir John Seymour, who was father of the protector, and of the unfortunate lady Jane Seymour. According to the tradition of the neighbourhood, this lady was married to the tyrannical monarch at a place called Wolf-hall, near Bedwin, where Sir John Seymour then refided.

Here are two annual fairs. The parish contains 316 houses, and 1632 inhabitants, most of whom are employed in agriculture. The famous Oxford physician, Dr. Thomas Willis, was born here.

About two miles west of the town is Tottenham park, a seat of the earl of Aylebury. The house was built by the celebrated earl of Burlington, on the site of an ancient palace belonging to the marquis of Hertford, who was afterwards created duke of Somerset. Tottenham-park is part of the forest of Savernake, which is the only private forest in England independently belonging to a subject. It is a large tract of wild ground, profusely wooded, and containing much fine old oak timber.

BEE, Apis, in Natural History, a genus of the Hymenopterous order, in the Linnaean classification of insects; in Physiography, in Hymenoptera, more commonly expressive of the common honey-bee (apis mellifica), although likewise applicable to the various other species of honey-bees, and in a still more general sense to those which do not, as well as those which do, produce honey; those which live in societies, as well as those which lead a life of solitude, or in independence from their kindred kinds; all which have a certain appearance and call of character, which, in the common acceptance of the word, claim the distinctive epithet of lec, or honey-bee, humble bee, wild bee, &c.

The bee, or aps tribe, characterised in the Linnaean system as having, in common with other hymenopterous insects, four membranous wings, and the female being armed
armed with a sting. This genus comprehends an amazing number of distinct species, many of which are clearly ascertained; some are doubtful; and many, if we may be allowed to reason by analogy, are as likely yet unknown. Upon the whole, there are many genera of insects that comprehend a greater number or variety of species than the *Apis.* The majority of those correctly known have been already enumerated under the article *Apis,* to which the reader is requested to refer. The principal subdivisions, or natural families of the genus under which they have been described by Linnaeus, and by various writers before and since the time of that naturalist, will be also found there. Descending from the minutiae of critical inquiry into the complicated characters of those subdivisions, it reverts with us in this place to speak of the *Apis* in another point of view—as a race of animals highly entertaining, for their manners, habits, and instinctive properties, to the naturalist; important to the economy in rural life; and familiar to every one by the trivial appellation of “a bee.”

Under this head, the common honey, or domesticated bee, demands the first consideration, as it will serve to elucidate the peculiarities of the whole tribe, at least so far as they are of material consequence in the concerns of human life. By the indiscriminate term of the common honey-bee, we comprehend what are individually named the *queen bee,* or female; the *bee,* or drone; and the *worker bee,* or neuter.

The natural history of the common bee has been more fully and impartially considered than that of any other creature of the insect tribe: with the exception of the silkworm, and the coccus employed in dyeing, there appears to be none more deserving of the regard paid to it. As an object of advantage, the honey-bee has been deemed, by the common sentiment of mankind in all ages, of sufficient consequence to be particularly attended to. We are not to forget the occasional recurrence of classic writers of antiquity to the bee: the pastoral poets celebrate its praise; nor was the cultivation of this useful creature overlooked even by the earliest Britons, of whom we possess any record. Its preservation and its culture were recognized in their laws; the bee itself was considered as a most desirable domestic, and the honey one of the greatest delicacies the bounty of heaven had granted them. In modern days, the importance of the bee has suffered a very sensible diminution in this country: still it is cultivated, and with advantage, by the thrifty agriculturist. But in the warmer regions of Europe, such as the south of France, Italy, and the neighbouring parts of Asia, its cultivation is attended with more success than with us; the climate of those countries, mild, invigorating, and abundantly productive of luxuriant vegetation, is perfectly congenial with the nature of the bee; there it requires but little care from the hand of culture, and amply pays that little bestowed with the spontaneous produce of its industry.

While we are speaking on this particular topic, it will not be thought surprising to advert to a few remarks that have lately fallen from the pen of M. Latiere, an ingenious French naturalist, in an introductory discourse to the study of bees published last year in Paris. *Dans la grasse ferme des animaux apprêts infestes s'ayant faire,* he writes, *n'est pas de plus l'histoire prie et une aussi grande richesse de faits, et une aussi prodigieuse sévérité de preuves, que celle des abeilles.* Sous les rapports de l'histoire, ces insectes font le chef-d'œuvre de la toute-puissance du Créateur; et l'homme humain, si fier de ses dons naturels, est, en quelque sorte, lié à la vue de l'intérieur d'une ruche. Celfenis de nous extasifer sur la cabane inopière du collin, sur la construction inextricable du nid de quelques oiseaux; telle celt est visible, lorsqu'on voit les travaux de l'abeille. Quoi!
Bees, Sexes of. There are in every hive or colony three
forts of bees, which Linnaeus calls regina (femina), fuci,
(mares), and operariz (fadones). The first is the queen, or
female; the second the drones, or males; and the last the
working bees, or neuters. The queen is larger than the
others; she is armed with a sting, and has thirteen joints
in the antennae, including the radicle; those of the male have
one joint more in the antennae; the eyes in this sex are large,
and it is destitute of a sting; the working bees are armed
with a powerful sting, and have fifteen joints in the antennae.
And here it will be proper to observe, that the circumstance
of the antennae in the female and neuter bee, containing the
same number of articulations, were not observed till lately.
Linnaeus tells us the antennae of the female has ten joints,
the male eleven, and the working bee fifteen; the discovery
to the contrary is due to Mr. Kirby, who, to use his own
language, says: "In every one of these affections, with
due deference to a name to great be it spoken, Linnaeus is
mitaken."

Bees, Structure and Anatomy of. There is nothing particu-
larly striking in the structure of the bee. In their form
they vary in different species, and in different sexes, but ge-
erally speaking they are uniformly bulky animals, having
the head large, the eyes oval and conspicuous, the thorax
broad and thick, as well as the body, and molt are com-
monly covered with hair or down; the sexes differinhal
by the number of articulations in the antennae (being one
more in those of the male than the female), and the mouth
furnished with strong instrumenta cibaria. The jaws and lip
of the apius mellifica are membraneous at the tip, the for-
er bidentated; as in other bees, the jaws open to the right
and left, and serve to carry out of the hives any thing
that incommodes them.
To those which have no stinger, the teeth of these jaws are
of essential service in their wars with such as pilfers that formidable weapon; and it is
believed, but on what foundation is uncertain, that the wounds
inflicted by means of these teeth inevitably prove mortal to
the other, or flinging bees, when they bite. The tongue
in different kinds of bees is very different in shape. It has
been observed, that in the more industrious species, this in-
mument, when stretched out, is shorter than in the others;
be this as it may, the tongue of the common honey-bee is
long, inflected, and extremely pliant; by means of this, the
bee not only procures itself necessary subistence, but it is
also employed by the animal to collect the honey, which
we appropriate to ourselves. The parts of which the tongue
connects in different bees are not uniformly distinguished
by the same terms in the works of entomological writers.
Proboscis is that by which Mr. Kirby, after the example of
Linnaeus, when defining the Aris genus, calls the tongue,
together with all the machinery that belongs to it, inclusive
of the sheath or vagina. This is more fully illustrated in
his definitions of the proboscis of the male, the female,
and the neuter of the common honey-bee, wherein the struc-
ture of this instrument, and the several parts of which it
connects, are correctly discriminated. It may not be alto-
gether irrelevant to our purpose to follow this agreeable writer
in some degree, whilst explaining the structure of the
proboscis or langue. This part of the body is composed of
seven pieces; Mr. Kirby speaks of more, viz., the fulcra,
tubus, valvulae, cardo, lora, palpi exteriores, palpi interi-
ores, laciniar exteriores, laciniar interiores, and lingua.
The fulcra is that part upon which the tube is rested, and
has been noticed both by Swammerdam and Reaumur; the
latter of whom calls it le pivot. Tubus is that part called
by Fabricius the base of the tongue, and by Swammerdam
and others the sheath of the tongue, including the base of
that organ; and in a certain measure answering the fame purpose
as the valvulae. The latter, or valvulae, form the exterior sheath of the
tongue. As to the cardo, cardines intervene between the
valvulae and the lora, and seem to perform the office of
hinges. Reaumur mentions these as " filets tendineux par
les quelles les tiges font attachees a leurs appuis." Lora are so
named by Mr. Kirby from their use, which seems to be to
let out or pull in the proboscis, being those parts which
Reaumur calls "les leviers;" when the proboscis is extend-
ed, the angle on which the fulcra of the tube fits, is ob-
served to point towards the breast, but when retracted, its
position changes, and it points towards the mouth. Pal-
pi exteriores are organs noticed in the rude sketch of the
proboscis of the hive bee by Swammerdam, who does not,
however, speak of them. In this kind they are small,
and confining only of a single joint, escaped the obser-
vation of Reaumur; in some bees they are large, and con-
tain from one to six joints. Palpi interiores are those
parts of the proboscis which Reaumur distinguishes by the
term "barbes;" in the common bee, these consist only of
two articulations; in other species they are known to con-
tain a greater number. De Geer calls thee little organs,
"les petit barbillons." Lacina exteriores are to be met with in
almost every family of the apius genus. Lacina interiores
are peculiar to the apius, and embrace and defend the tongue
where it enters the tube; these are called by Swammerdam
the third pair of joints or the proboscis; Reaumur mentions
them as "pieces qui embrastent et fortifient la trompe;" Lat-
relle, in his Nomada family, names them 'lames later-
ales." Lingua, or the true tongue, called sometimes by
De Geer "le levre inferior," or inferior lab, is occasionally
mentioned by Fabricius under the name of labium, or by
Roemer, in a work entitled "Genera Insectorum, &c.
lays down the character of apius thus:—"Jaws dentated,
with an inflected proboscis, with two bivalve shells, in which
the tongue is included." Latrelle, in a work recently pub-
lished, divides the apius genus into two families; the first,
corresponding with the *melitta* of Kirby, has these characters: "Machine et langue tres longues, deux ou trois fois plus longues que la tete, dirigees en avant dans l'action, et don la bave refroidiement de la cavite ou elles sont logees. Partie faillant de la langue evace, a trois divisions plus courte que la gaine: celle-ci longue et cylinrique." The two Fabrician genera, *bylæus* and *andrena*, are arranged under this family; the tongue in *bylæus* is thus described: "langue large; divisions du milieu echancree, dentee, echelle." In *andrena*, "langue oblongue; division au milieu en point renflee." La gaine, or sheath of the tongue, is not invariably cylindrical in this division (*melitta* of Kirby); it is sometimes conical.

In the family which includes the true *apes* of Kirby, the tongue is thus described by Latreille: "langue tres longue, etroite, lineaire presque, cylinrique, un peu coriace, a papillons les extremitie, filee a la fortie de la gaine." *Nomada*, *apes* and *ceueta* of Latreille are included under this head. "Nomada* is thus characterized still further: "langue d'une piece avec deux tres petites foies laterales." *Apes*, "langue de trois pieces (organes de la nutrition plus petits dans les males)." *Ecceta*, "langue de cinq pieces." We have deemed it requisite to be thus minute in following the observations of Kirby, Latreille, and others, who have directed and examined the structure of the proboscis in different bees, with the aid of microscopic glasses, for the purpose of showing the facility of the commonly received opinions, that in all bees the structure of this organ must be the same. For instance, we feel that in one family the tongue is very long, more than twice or thrice the length of the head, with the extremity opening into three divisions, the whole of which is contained within a sheath of a cylindrical form; in others this part is conical. Some have a large tongue, with the middle division of it foping, jagged, and ciliated, and the end truncated; again, others have an oblong tongue, the middle piece of which is cleft and lacerated at the tip. In many, the tongue is very long, straight or linear, almost cylindrical and papillos at the extremity; while the tongue in others consists of a fipple piece, having two lateral laciniae of a small size; and sometimes, on the contrary, the tongue is formed of five pieces; in the *bylæus*, *andrena*, and *nomada* families, the tongue is three-eclft, in *apic* five-eclft, and in *ceueta* seven-eclft.

In the formation of the proboscis, the purpose for which nature has designed this curious instrument is very apparent. That of the common bee has been examined with attention. Tiff, the sheath or external parts are observed to protect and strengthen the organs of nutrition which they contain; the valves of the sheath are disposed on each side of the tongue in pairs; with the tongue itself, which is perversus, the bee extracts and gathers the necessary pieces from flowers, which are shortly after converted into honey. The two pieces of the external sheath are horns or membranous, those of the inner sheath are placed higher above the base than the external ones. The proboscis is partly membranous, and partly of a gritty nature, and is the lower part formed in such a manner that it is capable of considerable dilatation, by means of which the internal cavity may be prodigiously enlarged, and rendered capacious enough to receive a great quantity of native honey. When the proboscis is shut up, and inactive, it is very much flattened, and broader than it is thick. The lower and membranous parts of the trunk at the base have no hair upon them, but are covered with little transparent protruberances that are placed in regular order, and at equal distances from each other; these are tipped to be glandules, and may have a considerable share in charging or preparing the honey that is swallowed or taken up by the proboscis. Down the middle of the proboscis there is a tube of a much harder nature than the flutes which becomes rather tapering towards the apex, where the proboscis is very thick set with small hairs, which may serve to keep it in a proper situation when in use.

The proboscis is not cylindrical, but rather a kind of convex blade, terminating to all appearance in a point; and the sheaths are so contrived as to cover little more than the upper part of it. Thefe exterior sheaths lap over each other on the upper part, so that the outside of the proboscis is protected by a very strong double edge; a covering that was unnecessary for the under part, because, when this instrument is in use, the sheaths are opened, but when inactive, it is to folded, that the under part is protected by the body of the bee. Within the exterior sheath, and near the bottom, are two levers, which are fixed to the end of the proboscis, and by the motion of which it is raised and lowered. If a bee is attentively observed when it alights upon a full blown flower, the activity and address with which it employs this apparatus will prove highly entertaining. The tongue is first protruded, then lengthened, then shortened, and continually kept in motion, bending and turning in every possible direction to adapt itself to the form of the flower.

The fling of the bee is a curious weapon, adapted to the indubitable habits of its life, which expose it to a multitude of dangers. It is truly an instrument in every manner calculated for offensive or defensive operations in the annoyance of its enemies. The wound which the bee inflicts with its fling is feverous, to its little antagonists it oftentimes proves mortal, because it not only strikes deeply into their bodies, but conveys at the same time a powerful poison into the wound which it occasions. In the queen or female bee, the fling is longer as well as fatter than in the working bee, and is bent a little under the belly. The female and the working bee are those only which are furnished with a fling; for the male, as before observed, has none. The fling in both is put in motion by means of certain muscles attached to its base, and contained within the abdomen, where also the glands for the secretion of the poison is concealed. This internal apparatus for the preparation of the poison has been misconceived: every writer, except the late Mr. Hunter, considers it as a fipple receptacle; whereas it appears, from the observations of that judicious anatomist, to consist not of one, but of two small ducts, although those two seem to unite into one: these are situated in the region of the abdomen among the air vesicles, and when pressed, inject into the passage of the fling the poisonous fluid drop by drop. The fling is apparently thick and solid at the base, and at the extremity remarkably acute; such is its appearance to the common observer; but strictly speaking, this is nothing more than the sheath or case in which the genuine fling is contained; the latter is an apparatus consisting of two extremely slender bearded darts, each of which has five or six recurved teeth or barbs placed near their extremity, or, according to Derham, they amount to eight recurved teeth on each dart. The head is of an horny substance, round at the base, and on the sides grooved, ending in a sharp point, and has an opening near the tip, through which the two bearded darts are protruded beyond the sheath, when the bee is in the act of flinging. When the two barbed darts, of which the true fling consists, are united, they easily enter the flesh, and then opening a little, become for a moment very securely fixed by means of the teeth with which they are befej. Some say one of these darts is rather longer than the other, and fixes its head, or tooth, first; and the other instantly following, they penetrate alternately deeper and deeper, holding themselves firmly in the flesh with their heads.
till the whole sting is buried in the wound, and the poison injected. When once the bee has completely transfixed its sting into the flesh, the acid caustic liquor, called the poison, is pressed from the glands in which it is seerected, and passing down the channels of the darts, discharges its malig- nant contents into the wound, occasioning an acute pain and swelling of the part, the inflammation of which continues not unfrequently for several days after. Dr. Hunter, being defirous of ascertaining the force of this poisonous fluid, dipped needles into it, with which he pricked the back of his hand; the like experiment he tried on the same part with needles that were not dipped into it, and found that the punctures occasioned by the former grew fore and inflamed, while the others did not.

But if the wound which the bee inflicts be painful to those who receive it, to the bee it is attended often with more fierce harm, for it inevitably proves fatal if by any accident the sting is broken off in the act of inflicting it. When the creature strikes its sting deep into the flesh, and the person starts, and discomposes the bee before it can disengage itself, the sting is almost certain of being broken off, and left sticking in the wound. On the contrary, if he has patience to stand quiet, the bee will begin the two slender darts close together, and withdraw the whole, in which case the wound is always left painful. A wasp is not so liable to leave its sting in the wound as a bee; the beards of the darts being shorter, and the insect more nimble and vigoro- rous in its operations. When the bee means to sting, it flies about the object of its anger very quickly, and by the velocity of its motions, seems to evade being struck or at- tacked to advantage, while preparing for the assault. The found emitted at this time is also peculiar, and to those accustomed to bees, is perfectly well understood. The danger of being stung by bees (it has been said), may be in a great measure prevented by a quiet composed behaviour. A thousand bees will fly and buzz about a person without hurting him, if he will but stand still and forbear disturbing them, even when near his face; in which case he may ob- serve them for hours together without danger; but if he molests or beats them away, he usually suffers for it.

In the "Edinburgh Medical Commentaries" it has been affirmed, that a person is in perfect safety in the midst of myriads of bees, if he were to keep his mouth carefully shut, and breathe gently through the nostrils only; the human breath, it would seem, being peculiarly offensive to their delicate organs; and merely with this precaution, it is said, the bees may be turned up, and even part of the comb cut out while the bees are at work.

Reamur made use of no other remedy for the sting of the bee than to bathe the part affected with cold water, a remedy which in most cases will allay the pain and inflammation only during the time of its application. Oil of olives, or sweet almonds, applied to it alleviates the pain. Lombard, a late French writer, in his "Manuel necel-ire au villageois pour foigner les abeilles," prefers a better remedy. He recommends that the wound be pelled, to cleanse it as much as possible from the venomous fluid, and then rubbed with alkali, or with a little diluted quick lime, by means of which the properties of the poison will be neutral- ized; the wounded part, after the application of this remedy, must be well washed with cold water, when both the pain and swelling will be found to have received consider- able relief.

Bees. Voice of. The bee is capable of emitting either by the mouth or motion of the wings, a variety of sounds, expressive of its anger, fear, contentment, and other passions; a circumstance hitherto but very slightly regarded by those writers who have, in other respects, entered most minutely into the history of this animal. Mr. Hunter, in his paper on the honey-bee, inserted in the Philosophical Transactions, pays a few words on this subject. Bees, he tells us, may be said to have a voice; or at least, that they are able to form several distinct sounds. They give a sound when flying, which they can vary according to circumstances. One ac-customed to bees can immediately tell when a bee intends to make an attack by the sound, most likely of the wings, that is to say, when the sounds produced by the flying bee are not equally distinct. This is produced by the wind and peevish finding while the wings remain motionless. To ascertain this matter with a flill greater degree of accuracy, Mr. Hunter held a bee by the leg with a pair of pinces, and very clearly observed that the creature made the fame peevish noise while the wings were perfectly still. After he, even cut the wings off, when the poor bee continued to make the same noise as before. Heimmered the bee in water, but it did not then produce any noise, till it was much teized, when the fame found was heard as in the former instance; during this experiment, he could observe the water, or rather the surface of contact of the water with the air, vibrating at the orifice of an air-hole situated at the root of the wing. The fame writer remarks, that the bee, or some kinds of them at least, make a noise the evening before they swarm, which is a kind of ring or sound resembling that of a small trumpet; and by comparing it with the notes of the piano-forte, it seemed to be the same with the lower A of the treble. When the bees return from their daily excursions in the fields, to their hives at evening, loaded with farina and honey, they are well known to ring or hum a soft melodious tone expressive of their content- ment. Entomologists are well aware that the sound emitted by the bee is susceptible of certain modulations. Some of these proceed undoubtedly from the motion of the wings, and vary in tone as they are moved with greater or less velocity, just as we observe in other insects furnished with transparent wings; and in some degree throughout the whole of the insect race, with the exception of those which have very small wings, or are entirely destitute of them. From the observation of Mr. Hunter on the emission of air from the lateral trachea, or air vellum in the fide, it would seem, that a certain sound may be caused by means of these little organs; the remark of this anatomist deferves more consideration than he appeared to be himself purposed of, since we know that the ringing of the cicada, a noisy tribe of insects, proceeds not from the mouth, but from two lateral openings, one on each side of the abdomen; the sound being produced by means of a most singular internal organization, and transmitted through those openings at the pleasure of the creature. It is not unlikely, that many insects may be furnished with lateral organs for the purpose of making a certain noise, although not exactly of the same structure in the cicada, and certainly upon a much smaller scale. That a bee emits a sound from the mouth, is also believed. A gentleman within our knowledge, who has made the manners of bees his particular study, can with the utmost facility declare the sex of any bee that may chance to pass near him, by attending only to the motion and sound emitted by it while in flight.

Bees, Age of. Writers are not agreed as to the duration of the term of life in the honey-bee. Among the ancient
It was thought to extend to more or less ten years. Virgil and Pliny limit it to five. Some suppose that they are annual; others that they live many years, but the latter idea is almost exploded at this time. On the other hand, although they may be considered annual, a few of the females certainly live through the winter and lay the foundation for a new family in the ensuing spring. In the month of August, Mr. Hunter imagines the queen, or queens, to be impregnated by the males, and that they do not provide for themselves, they become burdensome to the working bees, and are therefore destroyed as males, and thrown out of the hives. When the bees are about the hives of providing their winter store, every operation ceases, excepting that of collecting honey and bee bread for the future inheritance of the colony. At this particular crisis, it would seem as if the males were conscious of their approaching danger, for they do not rest before the month of the hive either when going in or coming out; activity apparent in all their actions. But this avails them little, nor does it aver, though it may protract, their fate; for a short time: they are commonly attacked by the labouring bees, one, two, or three together, and seeming to be incapable of making any resistance, or anxious to avoid the contest, attempt only to enure: their safety by hailing out of the way of their cruel enemies as readily as possible. The labourers do not fling the males, Mr. Hunter tells us, but only pinch, torment, and pull them about, as if to wear them out, and, when, by such violent treatment, the death of these hapless creatures, who would die naturally in the space of a little time after.

But, Economy of: When we speak in a familiar manner of the economy of bees, such as the keeping of wax, the constructing of honey combs, ranging the fields and gardens to collect farina and nectarous juices for the preparation of wax and honey; attendance, nurturing, and feeding the young bees or larvae, covering in the dry hives or paper, &c. the busy bee alone is meant, for the females and the males are only implicated in the economy, so far as relates to the wall government of the hive, and generation of the future brood. Among those who have minutely treated on the subject, (the economy of bees) many have resided very wonderful and remarkable circumstances; the moral virtue (as has well been said) have all, at one time or other, been attributed to the bee. They have been celebrated for their prudence, industry, mutual affection, unity, loyalty to their superiors, care, public spirit, liberality, and cleanliness. The quantity of bees in full size, or cold, has been often mentioned; this is evidently true; but for a short time, at least, before we are liable to the alteration in the state of the weather, their conduct previous to which is not ignorant of it. Mr. Hunter lately observed their return home in great numbers on cold weather, &c. without having been present a day or two before, they are seen flying in the air, or coming near the hives, and the like, a situation of bees (as far as I have been able to judge) is not always the same, but in every case, if you are to use the expression of bad weather, by some particular place, it is the same, however, when they are very cold. They, or a female brings them from the work; it is not in the hive; and those that they bring they hurry in with great quickness, so that the doors of their hives are too small to admit them. On the other hand, in the sky, you will find the drones of the hives, which are increasing rapidly. Whether they are the clouds gathering for it, as some imagine, or whether it is much more probable) they feel some other effects of it upon their bodies, is not yet determined; but it is alleged, that no bee is ever caught even in what we call a sudden shower, unless it have been at a very great distance from the hive, or have been injured by some accident, or been sickly, and unable to fly so fast as the rest. Cold is a great enemy to them. To defend themselves against its effects during a hard winter, they crowd together in the middle of the hive, and buzz about, and thereby excite a warmth that is often perceptible by laying the hand upon the glass window of the hive. They seem to understand one another by the motion of their wings: when the queen wants to quit the hive, she gives a little buzz; and all the others immediately follow her example, and retire along with her.

Although many of the accounts that have been given of the bee are fabulous, an intimate acquaintance with them in their domestic operations, has furnished many real facts that are as surprising as those which are apparent, or perhaps wholly, groundless. It is not to be disputed, that at certain times, when they think their stores likely to fall short, they make no scruple to kill and throw out of the hives their own offspring; the large and young bees of the male or drone kind, hastily extricated from their pupa state, have been carried away and left to perish. They may be just in some respects in their own kingdom, and to those who are to be considered as their fellow subjects, but they rob and plunder the strangers whenever they have power and opportunity; and they have frequently battled in committing depredations on neighbouring colonies and hives, or in repelling the aggressions of other invaders, in their own defence, which always terminate fatally to many of their number. This indeed does not often happen, except early in the spring, or late in autumn, when honey is scarce in their hives, and there are no flowers abroad to furnish them with more. In this case, when they have ranged the fields without success, they endeavour to supply themselves at the hazard of their lives, from the flowers of other hives. However, in all these contests, if the queen of either hive that happens to be engaged is killed, the battle ceases, and both parties unite under the survivor.

The industry and activity of bees in their domestic labours, afford a very instructive and amusing spectacle: all are busy, engaged in their several departments. While some are employed in gathering honey and wax, others repair the winter comb; others carry out the dead, and cleanse the hive; others keep guard, placing themselves in five or six files eight or ten deep upon the floor of the hives, so that all the bees when they enter must pass between these; some are even said to serve for bridges or ladders for others to pass over; and when they are tired with labours, they retire with the hive with rest. For this purpose, they form large or smaller clusters in the following manner: each with in two fore-holds, held in the hinder parts of the hive that is next above it, and this a chain is formed by the same simple application of one to another, and the whole supports the weight of all the bee on the bottom of the chain. The larger clusters are only a multitude of the chain, of which there are sometimes as hundreds together. The bees, it is said, never lie hold of any part of one another, except the legs. In this way, they likewise guard themselves from the effects of cold, and continue for several weeks together in a state of society.

Bees, we are told, when they begin to work in the hive, divide themselves into four companies, one of which takes the fields, in search of the wax; another employed in laying out the bottoms, and partitions of the cells; a third in making the frame of brood from the gills...
and corners; and the fourth in collecting and bringing food for the support of the rest, or in relieving those who return heavily laden. Neither of these four companies is kept con- 
finedly to one employment; they often change the tasks assigned them: those that have been at work, for ex- 
ample, in the construction of the cells, are permitted to go 
abroad, and those which have been in the fields already, 
are allowed to take their places in the hive. They are 
believed, and not without reason, to have certain ligas, by 
means of which they understand each other, and one striking 
instance is adduced in proof of this: when any one of the 
bees is in want of food, the creature bends down its trunk 
to the bee from whom it is expected, the latter immediately 
opens its honey-bag, and lets some drops of honey fall into 
the mouth of the other, which is at that time observed open 
to receive it. Many other circumstances might be likewise 
mentioned, were they necessary to confirm this idea. These 
particulars relate almost exclusively to the operations of the 
neuter or labouring bee: the males answering no other 
purpose than simply that of males in their sexual capacity; 
and the queen or female breeder only attending to the dif- 
charge of her more important duties, the laying of eggs, 
and influencing, by her presence, the working bees, to per- 
severe in their respective labours.

Bees, Generation of. These insects begin to breed in the 
upper part of the hive, in the cells adjoining to those which 
are filled with honey, and they descend gradually into the 
lower parts, as the flowers furnish them with wax 
increased in plenty. The cells designed for the working 
bees, are commonly half an inch deep: those for the drones, 
three quarters of an inch; and those intended to contain 
the honey only, half deeper. The queen bee is generally 
concealed in the most secret part of the hive, and is never 
vivable, except when she happens to lay her eggs in such 
combs as are exposed to fight. When the drones appear, 
she is always attended by ten or a dozen of the common 
four, who form a kind of retinue, to follow and guard her 
whenever she goes. Before she lays her eggs, she examines 
the cells where she designs to lay them; and if she finds 
they contain neither honey, wax, nor embryo, she introduces 
the posterior part of her body into the cell, and fixes to the 
bottom of it a small white egg, which is composed of a thin 
membrane, filled with a whitish liquor. In this manner 
she proceeds on, till she fills as many cells as she has eggs 
to lay, which are generally many thousands. Sometimes 
more than one egg has been deposited in the same cell; 
when this is the case, the working bees remove the super- 
numerary eggs, and leave only one in each cell. On the 
first or second day after the eggs are lodged in the cells, 
the drone bee is suppos'd by many to inject a small quan- 
tity of whitish liquid, which in about the course of a day is 
absorbed by the egg. On the third or fourth day is pro- 
duced a maggot, which, when it is grown to as to touch 
the opposite angle of the cell, coils itself up in the shape 
of a cemiacircle; and flows in a certain liquid whereby it is 
nourished, and enlarged in its dimensions: this liquid is of 
a whitish colour, of the thicken's of cream, and of an in- 
fluid taste, like flour and water. The origin and qualities 
of this liquid are not correctly explained: some have sup- 
pos'd that it consists of some generative matter injected by 
the male or drone bee into each cell, in order to give fecun- 
dity to the egg; a more probable opinion is, that it is the 
same with what several writers call the bee-bread; and that 
it is a mixture of water with the juices of plants and flow- 
ers, collected merely for the nutrition of the young while 
they are in a weak and helpless state. Whatever may be 
the nature of this aliment, it is certain the bees are very 
indulgent in supplying the worms with it. The larva, or 
maggot, is fed by the working bees for about eight or ten 
days, till one end touches the other in the form of a ring, 
and when it begins to find itself uneasy in its first posture, it 
ceases to eat, and begins to unroll itself, thrashing the head 
forwards towards the mouth of the cell. The attendant bees, 
observer the symptoms of approaching transformation, 
deurth from their labours in carrying food, and employ them- 
selves in fastening up the top of the cell with lidof wax form- 
ed in concentric circles, and by their natural heat afflait in 
cherishing the brood, and hastening the birth. In this state, 
the larva extends itself at full length, and prepares a kind 
of silky covering, which forms a complete lining for the 
cell, and affords a convenient receptacle for the transforma- 
tion of the larva to the pupa state. Some naturalists sup- 
pose, that as each cell is destined to the successive breeding 
of several larvae, the whole web, which is composed of many 
crafts or doubles, is, in reality, a collection of as many 
webs as there have been larvae. M. Maraldi apprehends, 
that this lining is formed of the skin of the larva, thrown 
off at its entrance into the nymph or pupa state; but it is 
urged by others, that if the cells are opened when recently 
covered by the bees, the larva within will be found in its 
own form, and detected in the act of spinning its web; and 
by means of glatives, it will be found composed of fine threads, 
regularly woven together, like those of other spinning animals.

In the space of eighteen or twenty days, the whole pro- 
cesses of transformation is finished, and the bee endeavours 
to discharge itself from confinement, by forcing an aperture 
with its jaws through the covering of the cell; the piliation 
is gradually dilated; so that one of the maxillas or jaws 
appears first; then the head, and afterwards the whole 
body; this is usually the work of three hours, and some- 
times of half a day. The bee, after it has didigated it- 
self, flings on the surface of the comb, till it has acquired 
its natural complexion, and full maturity and strength, so as 
to become fit for labour. The rest of the bees gather 
round it in this state, congratulate its birth, and offer it 
honey out of their own mouths. The exuviae, and fattered 
pieces of wax which are left in the cell, are removed by 
the working bees; and the cavity is no sooner cleansed, and 
fit for new fecundation, but the queen depositions another egg 
in it; infomuch, that M. Maraldi says, he has seen five bees 
produced in the same cell, in the space of three months. The 
young bees, it is said, are easily distingued from the others 
by their colour: they are grey instead of the yellow 
brown of the common bees, the reason of which is, that 
their body is black, and the hairs that grow upon it are white; 
from the mixture of these that are seen together, refults a 
grey; but this colour forms itself into brownish by degrees; 
the rings of the body becoming more brown, and the hairs 
yellower.

Reaumur suppos'd, before the time of Linneus, the queen 
bee to be the only female in the hive, and consequently, 
the mother of the next generation: that the drones are the 
males by which she is fecundated; and that the working 
bees, or those which collect wax on the flowers that k明白 
it, and form the combs and cells, and afterwards fill them 
with honey, are the neuters.

Schrachi, in his " Histoire Naturelle de la Rius des 
Abbeilles, &c. published in 1752," has advanced a different 
opinion upon this subject. He suppos'd, that all the com- 
mon, or honey bees, are females in disguise, in which the 
organs that distinguisb the sex, and particularly the ovaria, 
are obliterated, or at least from their extreme minuteness, 
have escaped the observer's eye; that every one of these 
bees, in the earlier period of existence, is capable of becom- 
ing a queen bee, if the whole community should think pro- 
per to nurse it in a particular manner, and raise it to that
rank; in short, that the queen bee lays only two kinds of eggs, those which are to produce the drones, and those from which the working bees are to proceed. This author made his experiments not only in the spring months, but even as late as November. He cut off from an old hive a piece of the brood comb, taking care that it contained living or worker bees as they are termed, which had been hatched about three days. This he fixed in an empty hive, together with a piece of honey-comb for food to his bees, and then introduced a number of common bees into the hive. As soon as the bees found themselves deprived of their queen, and liberty, a dreadful uproar took place, which lasted twenty-four hours. On the effusion of this tumult, they betook themselves to work, first proceeding to construct a royal cell, and then taking the proper measures for feeding and hatching the brood enclosed within them; sometimes, even on the second day, the foundations of one or more royal cells were to be perceived, which proved a certain indication that they had elected one of the inclosed larvae to the sovereignty.

The final result of these experiments seemed to be, that the colony of working bees being thus shut up with a piece of brood comb, not only hatch, but at the end of eighteen or twenty days, produce from thence one or two queens, which, it was supposed, proceeded from the larva of the common working bee, and which had been converted by the colony into a queen, merely because they wanted one. — From these, and other experiments repeated, Mr. Schirach concluded, that all the common working bees must be originally of the female sex; although, if they are not fed, lodged, and brought up in a particular manner while in the larva state, their organs are not developed; and that it is this circumstance attending the bringing up of the queen, that allows the full extension in the female organs in the first instance, and produced afterwards that difference in her size and aspect, so dissimilar to that of the working bee.

Mr. Debraw, an ingenious apothecary of Cambridge, made many experimental remarks on bees, which are inserted in the Philosophical Transactions for 1776. He professes to have detected the impregnation of the eggs by the males, as well as to have discovered the difference in size among the drones or males, of which Maraldi and Reanmura, besides some others, had conceived there might be two distinct kinds. Mr. Debraw says, he watched the glass hives with indefatigable attention from the moment the bees (among which he took care there should be a large number of drones) were put into them, to the time of the queen's laying her eggs, which generally happens the fourth or fifth day. He observed, that on the first or second days (always before the third) from the time the eggs are placed in the cells, a great number of bees fastening themselves to one another, hung down in the form of a curtain from the top to the bottom of the hive. They had done the same at the time the queen bee deposited her eggs, an operation which seems contrived on purpose to conceal what is tranfacting; however, through some parts of the wall he was enabled to see some of the bees infesting the posterior part of their bodies, each into a cell, but continuing there only a short time. When they had retired, it was easy to discover a whitish liquor left in the angle of the basins of each cell which contained an egg. In a day or two this liquor was absorbed into the embryo, which, on the fourth day, assuages its larve state, and is attended by the working bees, who bring it a little honey for nourishment, and continue to feed it for the space of eight or ten days after its birth. When the bees find that the larve has attained its full size, they deft from bringing any more food, knowing that the larve has no more occasion for it while in that state; but they have still another service to perform upon it, in which they never fail to perform their duty: this is to shut up the top of the cell in which the larve is enclosed; for eight days longer it remains within the cell after being thus imured, during which time a further change takes place; the larve, which was before idle, begins to work as soon as the bees commence their operation of clothing the cell with wax, and then are employed in making the covering of wax, the larve is at work within the cell, which it lines with a fine film. The larve thus concealed, voids its excrement, quits its skin, and assumes the pupa form; at the end of some days, the young bee acquires sufficient strength to quit the covering of the pupa, tear through the waxen enclosure of its cell, and proceed from thence a perfect winged insect.

To prove still further that the eggs are fecundated by the males, and that their presence is necessary at the time of breeding, Mr. Debraw made the following experiments: he left in the hive the queen, with only the common or working bees, without any drones, to see whether the eggs she laid would be prolific; for this purpose, he took a swarm, and shook all the bees into a tub of water, leaving them there till they were quite infested, by which means he was able to discover the drones without any fear of being flying by the others; he then restored the queen and working bees to their former state by spreading them on a brown paper in the sun, after which he placed them in a glass hive, and they began very soon to work as usual. The queen laid eggs, which to his great surprize were impregnated; for he imagined he had separated all the drones, or males, and therefore omitted watching them. At the end of twenty days, he found several of the eggs had, in the usual course of changes, produced bees, while some had withered away, and others were covered with honey. Hence he inferred that some of the males had escaped his notice, and impregnated part of the eggs. To convince himself of this, he took away all the brood comb that was in the hive, in order to compel the bees to provide a fresh quantity, being determined to watch narrowly the motions of the new eggs should be laid in the cells. On the second day after the eggs were placed in the cells, he perceived the same operation that was mentioned before, namely, that of the bees hanging down in the form of a curtain, while others thrust their posterior end of the body into the hive. He broke off a piece of the comb in which were two of these insects, and found in neither of them any wing; (a circumstance peculiar to the drones,) upon dissection, with the assistance of a microscope, he discovered the four cylindrical bodies which contain the glutinous liquor, of a whitish colour, as observed by Maraldi in the large drones. He was therefore now under the necessity of repeating his experiments, without destroying the males, and even those which might be suspected to be such.

He once more immersed the same bees in water, and when they appeared to be in a flatus state, he gently pressed every one, in order to distinguish those armed with a ring from those which had none, and which of course he supposed to be males. He replaced the same swarm in a glass hive, where they immediately applied themselves again to the work of making cells, and on the fourth and fifth day, very early in the morning, he had the pleasure to see the queen bee deposit her eggs in those cells; he continued watching most part of the ensuing days, but could discover nothing of what he had seen before.

The eggs, after the fourth day, were found in the same state as on the first day, except that some of them were covered with honey. A singular event happened next day about
about noon; all the bees left their hive, and were seen attempting to get into a neighbouring one, on the istool of which the queen bee was found dead, being, no doubt, slain in an engagement. This event Mr. Debraw supposes to have arisen from the desire of the bees to perpetuate their species, to the concurrence of which the males were necessary, and that this consideration alone induced them to desert their habitation where no males were left, and to fix their residence in a new one, where there was a flock of them.

To be more fully satisfied in this respect, Mr. Debraw took the brood comb which had been impregnated, and divided it into two parts; one of which he placed under a bell glas with honey-comb, for the food of the bees, taking care to leave a queen, but no drones among the bees confined in it; the other piece of brood-comb, he placed in another bell glas with a few drones, a queen, and proportionable number of common bees. The result was, that in the piece put into the first glas there was no impregnation, the eggs remaining in the same state as they were when first placed in it, and on giving the bees their liberty on the seventeenth day they all flew away; whereas in the other glas, which contained the second piece of brood-comb, the very day after the bees had been put into it, the eggs were impregnated by the drones, and the bees did not leave the least inclination to abandon their new habitation when the glas was left open to allow them to escape.

Such are briefly the different opinions of those experienced observers of the bee, Reaumur, Maraldi, Schirach, and Debraw, whose several ideas founded, as it must appear, upon the most laborious, indefatigable, and minute investigation, have met with many advocates. On a subject of this interest we ought not to assume any opinion hastily, or in an affair so mysterious, obtrude our own without a considerable degree of caution. Some writers of no mean celebrity have treated, since the time of these observers, upon the same topic, whose remarks divine to be impartially considered. To the foregoing observations, and some others made by Schirach in particular, the late Mr. Hunter has replied, in a paper written by him expressly on bees, and inserted in the Philosophical Transactions for 1792, of which we are to avail ourselves. The experiments performed by Schirach, Mr. Hunter is disposed to think inaccurate, and the result inferred from them of course unworthy of credit: how far the arguments of the latter are likely to refute the observations of Schirach, remains to be decided, when we have considered them in his own words. The criticisms of this anatomist are introduced to notice, in speaking of the queen bee.

"The queen bee, as she is termed, (says Mr. Hunter) has excited more curiosity than all the others, although much more belongs to the labourers. From the number of these, and from their existing themselves, they have their history much better made out; but as there is only one queen, and she is fearedly ever seen, it being only the effect of her labour we can come at an opportunity has been given to the ingenuity of conjecture, and more has been said than can well be proved. She is allowed to be bred in the common way, only there is a peculiar cell for her in her first flage, and Reaumur says, "her food is different when in the maggot flage;" but there is probably but one queen, and that the whole might not depend on one life, it is asserted that the labourers have a power of forming a common maggot into a queen. If authors had given this as an opinion only, we might have passed it over as improbable; but they have endeavoured to prove it by experiments, which require to be examined; and for that purpose I shall give what they say on that head, with my remarks upon it."

\[Abstracts from Schirach—\]

In twelve wooden boxes were placed twelve pieces of the comb; in each box was shut up a handful of working bees. Knowing that when bees are forming a queen, they should be confined, the boxes were kept shut for two days. When examined at the end of that period, (six boxes only were opened) "in all of them royal cells were begun, one, two, or three in each, all of these containing maggots four days old. In four days, the other six boxes were opened, and royal cells were found in each containing maggots five days old, surrounded by a large provision of jelly, and one of these maggots, examined in the microscope, in every respect resembled a working bee."

"This experiment was repeated, and the maggots selected to be made queens were three days old; and in seventeen days there were found in twelve boxes fifteen lively hand-some queens. These experiments were made in May, and the bees were allowed to work great part of the summer. The bees were examined one by one, but no drone could be discovered, and yet the queens were impregnated, and laid their eggs." [Here is a wonder! queens laying eggs, (which we must suppose Mr. Schirach meant we should believe) and they hatched without the influence of the male.]

"The above experiment was repeated with pieces of comb, containing eggs only, in six boxes, but no preparation was made towards producing a queen."

"The experiment of producing a queen bee from a maggot was repeated every month of the year, even in November." "A maggot of three days old was procured from a friend enclosed in an ordinary cell, and shut up with a piece of comb containing eggs and maggots. That, three days old, was formed into a queen, and all the other maggots and eggs were destroyed."

"In above a hundred experiments a queen bee has been formed from maggots three days old. [The working bees, as all females, although the ovaria is too small for examination, &c. Vide Phil. Tran.]"

Mr. Hunter next proceeds to speak of another author who repeated the experiments of Schirach. "Wilhelmi (he says) observes that a queen cell, which is made while the bees are shut up, is formed by breaking down three common cells into one, when the fides are repaired."—"A young queen was put into a hive which had been previously concerted to contain no drones, and whole queen was removed, and yet the young queen laid eggs." [Probable.] In repeating Mr. Schirach's experiment, he shut up four pieces of comb with one maggot in each; after two days the maggots were all dead, and the bees had defiled from labour. [There is no mystery in this; but did they hatch?]—"A piece of comb, from which all the eggs and maggots had been removed, was shut up with some honey, and a certain number of workers in; in a short time they became very busy, and upon the evening of the second day 360 eggs were found in the cells. [This would show that labourers can be changed into queens at will, and that neither they nor their eggs require to be impregnated; if this was the case, there would be no occasion for all the path in making a queen or a male.]

He repeated this experiment with the same result, and the bees were left to themselves; they placed the queen maggots in the queen cells newly constructed, and others in male cells, the reef was left undisturbed. He again took two pieces of comb, which contained neither eggs nor maggots, and shut them up with a certain number of workers, and carried the box into a flave; next evening one of the pieces of comb contained several eggs, and the beginning of a royal cell was empty."

Besides the short observations contained in the brackets, Mr. Hunter tells us he has his doubts respecting the whole
of these experiments of Schirach, &c. from several circumstances that occurred in the course of his experiments. The three following facts appear, in my mind, much against their probability. First, a summer's evening in England is commonly too cold for so small a parcel of bees to be lively, so as to set about new operations; yet they get so benumbed that they could hardly recover in the day, and he suspects, where these experiments were made, it also was too cold; and indeed none even are liable to be tried in this country. Secondly, if the weather should be too warm as to prevent this effect, then they are for it tells that they commonly destroy their females, or wear themselves out; at last, after a few days confinement we find them mostly dead; and, thirdly, the account given of the formation of a royal cell, without mentioning the above inconvenience, which is natural to the experiment, leads him to suspect the whole to be fabricated. To obviate the first objection, which he found from experiment would prevent any success that might otherwise arise, he put parcels of bees with their comb, in which were eggs and maggots, and some trials chrysalides besides, into a warmer place, such as a girl frame over tan, the surface of which was covered with mould to prevent the ill effects of the wholesome effusion arising from ti; but from knowing that the maggots were fed with bee-bread, or farina, he took care to introduce a cell or two with this substance, and also the flowers of plants that produce a great deal of farina, together with some honey for the old bees. In this manner his bees were preserved from the cold, and also provided with necessaries; but after being confined for several days, upon opening the doors of the hive, those which remained alive came to the door-way, walked and flew about, but gradually left it, and on examining the combs, &c. he found the maggots dead, and nothing like an operation going on. He chose to have some chrysalides in the comb, supposing that if the bees died or flew away, those newly hatched afterwards from those chrysalides, which would happen in a few days, not knowing where to go, might fly and take care of the maggots that would be hatched from the eggs; but to his surprise, he found on opening the box that neither the eggs hatched; nor the chrysalides came forth all died; from which he began to suspect that the presence of the bees was necessary for both. "The queen, the mother of all, (he concludes, with caution in whatever manner produced, is a true female, and derives from the labourers and the male." He describes the difference between the female and the male, observing that he thinks a male has only one queen; and mentions bees, who after that there are such numerous queens, who he has killed both by labourers and the male.

With due respect to the memory of so great a man, we have expected better rewarding, and a more copious and extensive investigation of the many fine effects, from the pen of Mr. John Hunter. After following him through his various remarks, we are left at a great loss to conceive their tendency. He sets forward with confiding he doubts as to the accuracy of Schirach's experiments, who had, he thinks, endeavoured to prove, that a queen bee might be reared from the humble condition of the larva of a common worker; the fugitive meets his ridicule, a striking view of which is apparent through his notes, and in the true spirit of critical analysis, he proceeds to examine the experiments by which the suggestion has been supported. Some few inaccuracies of expression in the statement of particulars, are mentioned by him, and after relating two or three insufficient experiments, made in order to invalidate the observations of Schirach, he tells us, that "the queen bee, the mother of all, in whatever manner produced, is a true female," an inference so logical, that no one would be misled, we may presume, to dispute it; but surely it could require no matter of argument, nor criticism, nor series of experiments, to prove, that the mother of all must be a female; nay, still less was it incumbent upon him to support, by the force of any words, that this female was produced in some manner or other; this is apparent enough; we need not be therefore solicitous to enquire whether she is produced, but to know in what manner that production is accomplished; and here we are! it is uncertainty. If Mr. Hunter was convinced that the observations of Schirach were erroneous, he could not, we apprehend, be ignorant of the manner in which she is produced; or, if he was, he must have been unauthorized to censure Schirach. In a word, it ought to be acknowledged in candour, between the two parties, that we had expected, in the outset, Mr. Hunter would have fairly controverted the arguments of his opponent, but in the conclusion perceive, too evidently, that he is content to contradict them only.

But the experiments of Schirach have been found in many respects consistent with the discoveries of later naturalists; experience has proved that in many points his is correct. It is almost enough to say that they are in part confirmed by Huber. The latter writer, after professing his opinion, that there are no such creatures as males or nectars in the society of bees, endeavours to show that the working bees are all originally of the female sex; and that each is consequently provided with an ovaris, or womb, which neither swarmed, REMARK, and perhaps no other before him, had ever seen, although they had conjectured it must be so. He cites in proof of the position that they must be females, the discovery of Schirach; who, although he had not detected the ovaries, had seen the larva of the working bees converted into queen-bees, when the necessities of the state required it; a fact of which Huber had been occasionally himself a witness. Huber is persuaded, that however strange it may appear, it depends entirely on the manner in which the larva is treated while remaining in the comb, whether the individual will become a perfect female, fitted for the purpose of perpetuating the race, the mother of the future swarm; and of being invested with the powers of sovereignty; or be doomed to a life of labour as a common working bee. If the larva be intended for the latter condition, the egg is lodged within the confines of a narrow cell; while, when the larva hatched from it attains a certain size, effectually prevents the diffusion of the organs of the ovaries that are necessary to the great purpose of rendering the creature prolific in the last stage of being. Thus it happens, that unless the larva be allowed sufficient room for those organs to expand, they continue to be crippled, compressed, and afterwards incapable of that expansion which is absolutely requisite in impregnation. Hence we perceive the motives for that unusual care which is being bestowed on the enlargement of the cell of itself with a view of putting an end to that fatal accident it may induce them to adopt for the female parent of the future brood. If the larva of a working bee is to be converted into a prolific female, the cell in which it has been lodged is broken into and made more capable than before; the parts the creature to attain its fulfilment proper: the ovaries, in other terms the glands beneath the cell of its cell, assume a new and more exalted form; and when the insect comes forth in the warmed state, the sexual organs are found to have acquired that degree of maturity which can alone render it capable of fulfilling the ordinary functions for which they were designed. There is also another cause to which the horns of the working bee is attributed, the quantity of aliment which it receives in the larval form. At the time the creature is put up within its narrow cell, and is allowed only a certain portion of the pale
B E E S.

But, contrary to that, every female, and not neuters, is as almost universally believed, may be drawn from the recent discovery of Mr. Kirby, who found that the antennae in both the female and the neuter contain the same number of joints. While we tacitly admitted the assertion of Linneaus, that there were no less than five articulations more in the antennae of the neuter than the female bee, it required no small share of credulity to believe that such an astonishing difference in the formation of these organs could be produced by the mere effect of feeding the creature under the larva form in one particular manner instead of another; but this mistake being ascertained, removes one difficulty most certainly, namely, the impossibility of the working bee having been transformed into a queen, if it does not go very far to prove the fact itself. There are, it must be owned, however, some other objections of a similar nature, which still remain to be removed. Mr. Kirby, whom we know no firmer advocate for the opinion of the working bee being strictly neutral from their origin, does not appear to have been aware, when he corrected this mistake of Linneaus, that his remark would tend, in one material point, to support an idea so contrary to that which he entertains himself in this respect.

Mr. Wildman, who, from his constant habit of rearing bees, was perfectly conversant with their attachment to the female, or queen bee, relates one curious particular; the manner in which he could cause a swarm of bees to follow him, and alight in any particular spot he might think proper. "Long experience," says this writer, "has taught me, that as soon as I turn up the hive, and give it some taps on the sides and bottom, the queen immediately appears to know the cause of this alarm, but soon retires again among her people. Being accustomed to see her so often, I readily perceive her at first glance; and long practice has enabled me to seize her instantly with a tenderness that does not in the least endanger her person; this is of the utmost importance; for the least injury done to her brings immediate destruction to the hive, if you have not a spare queen to put in her place, as I have too often experienced in my first attempts. When posseced of her, I can, without injury to her, or exciting that degree of resentment which may tempt her to sting me, slip her into my other hand, and returning the hive to its place, hold her there, till the bees, missing her, are all on wing, and in the utmost confusion. When the bees are thus diffused, I place the queen wherever I would have the bees to settle. The moment a few of them discover her, they give notice to those near them, and thence to the rest; the knowledge of which soon becomes so general, that in a few minutes they all collect themselves around her, and are so happy in having recovered this sole support of their fale, that they will long remain quiet in their situation. Nay, the scent of her body is so attractive to them that the slightest touch of her along any place or substance, will attach the bees to it, and induce them to take any path she takes."

BEEs, Prefermation of. The preservation of these industrious and useful creatures deserves every consideration. This depends chiefly on supplying them with a sufficient quantity of food, guarding them from their enemies, and deploving them of the produce of their labour without destroying them. Besides the attention which should be bestowed upon the necessities of bees, in the choice of an eligible situation for the Apiary, it may be necessary to feed them towards the close of autumn, in the winter, or in the spring, when they have consumed their winter stock. This should be done, especially in cloudy, miffy weather, when they go abroad but little, and when several days of bad weather immediately follow their swarming. Mr. Thorley directs, that no hive should be kept which does not weigh twenty pounds; and that the supply should be given in quantities of honey, which
which is their proper food, not less than a pound and a half or two pounds at a time. The honey should be first drawn with water, or small beer, and then poured into an empty comb. A drone comb is the strongest and boll for the purpose: and in the evening, when the bees are quiet, the hive should be gently raised on one side, and the comb put under it, and the other hand, which will be conveyed away the next day into the clover meadow.

Reaumur recommends a place of liquid honey unmixed with water, crooked with brushes, and covered with a paper full of holes, through which the bees will suck the honey without catching themselves. But care should be taken that the hive be well guarded from robbers, whenever it is provided with a rich supply. The winter quarters of the bees should likewise be well secured, both against the weather and the enemies that would annoy them. Mice, however, are as injurious in cold winters, because they are then in a torpid state, and require very little nourishment, provided the apiary be well secured from the keen effects of northerly and easterly winds; whereas a small degree of warmth exhales them, when they too often confine their winter flock, and are left destitute of food in a wet unfavourable spring. When bees are chilled with cold, and to all appearance dying with cold, and the clusters of them are broken, so that they drop down in the hive, they may be recovered oftentimes by the means of heat. Some have advised the application of hot or warm ashes to be laid about the hives, or sprinkled over the chaffers of bees which lie영ingly dead at the bottom of the hive. A sufficient warmth may be given them by putting them into an abundance, and breathing upon them, or by laying them before a fire. This precaution should be taken immediately when the symptoms of disease are shewn, otherwise their vital may be impaired, and the bees be irrecoverably lost. Reaumur made many attempts to preserve the bees from the ill effects of cold in the winter without removing the hives out of the places where they stand in the warmer. With this view, he covered some of the hives with straw, by means of sticks fixed round them, and reaching a few inches above the tops, but the most successful method he found to be that of placing them in large tubs, with earth or hay, containing at the same time to convey air to them through a fissure in the sides of wood, two inches in width, and half an inch in depth, which passed through the side of the tub, and was so fitted a length of reach the mouth of the hive, projecting at the base three or four inches beyond the sides of the tube. As the time of Reaumur many rigorous continuations have been found to obviate this, and other objection, against the hives that were formerly in use. A new kind of hive has been suggested by M. H provoke, to be constructed of a glass, and containing the hive of the former. The agricultural committee of France has been recently advised by the examination of the bee, most neglected, and destructive habits of bees, when M. Leharb, a gentleman at the city, presented the invention on place, entirely new, under his name of "karagee," the continuance of which was very much approved. For the sake of preserving the bees, the invention should be paid to the invention in which the hives are placed; they are afterward kept in good order with hay and straw, fruit trees, and the like. The hive should not be placed too near, because they harbor venom insects to the bees, and that more, weeds must not be allowed to flourish close to the hives, since they nourish others far more detrimental to the bees than the former.

It is no unusual circumstance for one colony of bees to attack and plunder the hive of another. This happens chiefly in the spring and autumn. The most effectual way to guard against this insidious, is to keep the entrance into the hive, four to leave room for only two or three bees to go in or out. To do this, to close up the hives that are attacked, till the robbers disapper; or if drones have gained admittance, the proper inhabitants of the hive may be routed to f-fib-defence by disturbing them with a bunch of thinking madder tattered to the end of a small stick, which will instantly rafe their retreat, and make them seize upon the robbers. This is indeed needless while the queen of the hive attacked is safe.

Bees, Enemies of. To the domestic state the bee has many enemies; but in a state of nature these are far more numerous. While in the apiary, wasps and hornets are among the most formidable of these enemies; they will often entrance to enter the hive, and build their nests in it, and harasses the bees without mercy, till they leave their habitation, unless proper care be taken to prevent such encroachments. The fox is a dangerous enemy in the winter, as he is able to make a passage into the hive, and devour the honey. Rats are equally injurious; the house and field-mice should also be guarded against, by diminishing the entrance into the hive, as the cold comes on, when the bees become less able to defend themselves. The hives may be placed in such a manner that it will be impossible for the mice to reach them. Birds are bitter enemies to the bees; the sparrow, house-lark, and swallows in particular. Toads and frogs will place themselves at the entrance of the hive, and devour many. Spiders will expand their webs near the hive, and entrap numbers. The species aranea caliga lies in ambush the bees in the corolla of flowers, and falls upon them when they come to sip the nectarous fluids. Arts of almost every kind penetrate into the hive, attack the young brood, and plunder the combs of the honey. The shake of certain tribes of ants is so offensive to bees, that they will quit their hives to avoid it, or if they remain, become sickly. Some linnii, or caterpillars, are like-wise exceedingly injurious to the bees, the honey, the comb, and hive. Phalina melba, or honey moth, too frequently secures its residence in the hive, and devours its eggs; which latter sometimes a larva of a pale grey colour, which is very injurious on the honey. The eggs of another phalina, the wax moth, P. truncata, are hatched, and smaller, and the larger than the former; for these are formed from the eggs, than their operations commence; they attack the combs, which they perforate, by a series of intricate passages, burrowing and feeding as they proceed, till they reach the bottom of the cells in which they are lodged, and the queen in security, and not uncommonly spoil the colony of bees to leave their residence. The cold comb is a contrivance that are generally infallible by the winter. At the mouth of a bee, phalina melbae, a brownish, in the honey comb, of some bees. Hives of bees that have swarmed more than once, and such also as contain but little honey, are most exposed to the depredations of these insects; for the half-swallowed comb force to shelter them, and the honey or wax is furnished them at least with food to the detriment of the colony. Bees are subjects to a peculiar species of pedalis, called the bee-hone. Hives of bees that have swarmed more than once, and such as contain but little honey, are most exposed to these troublesome vermin. The hive in this case should be cleaned at the farther once every week, and the floors on which they stand every morning, for the latter are likely to harbour the larve and moths, or other insects, as well as the hive.
hives. But these obnoxious creatures cannot be entirely extirpated without taking away the infected hive, removing the bees, and cleansing it, before it is restored to the former station. The lice of bees are of a slender shape, or siliform, and of a ferruginous colour, and may be destroyed by burning tobacco over the bees. In a wild state the common honey-bee inhabits the cavities of hollow trees, where they are unavoidably exposed to a providious host of enemies, especially field and wood-mice of every description, rats, and birds. Of the bird tribe in particular, some species are supposed to feed exclusively on bees, such as the honey-buzzard (falcipapa), the European bee-eater (merops apiaster), &c. wood-peckers, the king-fisher, and many others: they do not feed, indeed, exclusively on them, as is imagined, but they are formidable enemies to the bees in a wild state. The animals and birds which prey upon the honey-bees are numerous likewise; of this kind we might instance the various species of ant-eaters (myrmecophaga), the black bear (ursus arctos), the honey-cuckoo (cuculus indicator), peacocks, &c.

Bees, Maladies of. In the spring the bees are subject to a kind of dyentery, which proves often fatal. The matter which voids at this time, when so affected, instead of being of a reddish yellow colour, is of a muddy black, and has an intolerable smell. COLUMella supposed this annual distemper to be occasioned by the bees extracting too freely the juices from the blossoms of the ipomea and elm trees, or, as others believe, from the lime tree. There are writers who, differing from this opinion, attribute it to the quantity of new honey, of which they are known to eat to excess at that season of the year. Again, others imagine that it is caused only by their long stay in the hive during the winter, when they are constrained to feed on the coarser wax, if their honey fails to afford them a sufficient quantity of food. MADAME Vicat, in the "Memoires, &c." of the Berne Society for 1764, ascribes this distemper to the honey which the cold has candied in the hive during the winter. The true cause of this distemper seems to be unknown; but it is certainly contagious and very destructive. A good remedy for it was long unknown. AvITOMACHUS recommends the removal of the vitiated combs. For the recovery of the bees affected with this distemper, a new remedy has been adopted upon the continent: they prepare a syrup composed with an equal quantity of good wine and sugar, which is administered to the bees in every hive, either by pouring it into the cells, or placing it within the hive in a faucer, or any other hollow vessel; this has been found an excellent restorative.

About the end of the spring, another disorder sometimes makes its appearance, which Du Carne de Blangy calls "vertige," or vertigo. This is supposed to be occasioned by the venomous properties of certain plants on which they feed. The symptoms are manifested by a dizzy manner of flight, by their involuntary flattings, falls, and other gesteats, in attempting to perform their usual operations, or in approaching the hive, and by the latitude that succeeds these symptoms. This distemper has been hitherto found incurable.

Bees are liable to a third distemper, the symptoms of which are a swelling at the extremity of the antennae, which becomes also much inflamed, and of a yellow colour; the head assuming shortly after the antennae, the bees lose their vivacity, and languish till they die, unless a proper remedy be applied. In France, they give them Spanish wine for this disorder.

There is still another distemper which sometimes makes its appearance among bees, for which the continental agriculturists administer Spanish wine, as in the former cases. This is a kind of pellagra by which many bees are cut off. It happens when the queen bee has placed the eggs carelessly in the comb, so that the larve perish in the cells, or that they are killed by the cold, or bed management in nourishing and feeding them; when numbers die, and infect the rest. The only attention requisite in this case is to take away the infected combs, scant the hive with the perfume of aromatic plants, and give them the wine to sip, as above mentioned, in order to strengthen and restore them from their sickens.

For the methods of preserving bees in hives and boxes, and for collecting the produce of their labours, see HIVE, HONEY, and WAX.

Honey-Bees, Varieties and Species of. The cultivation of the common honey-bee, in the warmer countries of Europe, being an object of the utmost consequence to the farmer, every means that ingenuity could devise to improve the breed and management of these profitable creatures have been adopted, and with success. They distinguish three kinds or varieties of the common bee (apis mellifica). The first is large, and of a deep brown colour; the second is smaller and blackish: those of the third fort called "the little Flemings," or "little Hollanders," are much smaller than either, and of a fine glossy yellow colour. It is the latter that is very generally cultivated on the continent at this time. APIS MELLIFICA is an European insect. Mr. Hunter supposes it an inhabitant of Asia and Africa also; its appearance in America may be accounted for on the presumption that it was originally introduced there from Europe, and in the course of time has become completely habilitated to that climate. It is said to have been originally peculiar to the continent of Europe, but this will admit of doubt. In those parts of Asia and Africa nearest to the south of Europe, they cultivate the same kind as ourselves. There are some other species of bees domesticated like the common bee with us, in different parts of the world; and others again, whose wax and honey are sought after by the natives, who do not care to take the charge and trouble of domesticating them. In Cayenne and Surinam, the species called by Olivier annulibera, is an abundant and most profitable creature. This little bee is of a black colour, with white wings and long posterior feet. They build their nest, in the shape of a bag-pipe, upon the tops of the highest trees. The honey is very sweet and agreeable, and thick, and of a reddish colour. From the latter the Indians extract a spirituous liquor, of which they are passionately fond; of the wax they make candles. This is supposed to be the small black innoxious wood-bee of Barrere, which is called apinae in Cayenne. M. LATREILLE mentions this species, and also another, which he calls "l'abeille sociale" (apis fascialis), among his "spaires domestiques," an insect rather smaller than the common honey-bee (melifica), that is found in India. Specimens of it, he tells us, were received at the museum of natural history in Paris, among a collection of other insects from Bengal. If we are not mistaken in the species, the same kind was likewise introduced into the cabinets of the curious in this country, about twelve months since by Mr. Fichelt, who found it to be very commonly cultivated by the inhabitants in the vicinity of Bengal.

Wild Bees. Except those species of the bee tribe which are subfervient to the purposes of human life, mankind has shown a marked degree of inattention to this curious race of creatures. Some few naturalists have regarded them as objects of amusement: and what the common observer is content to name a wild bee, without further inquiry, is discriminated by them as forming many distinct families; each of which have their peculiar manners and mode of life, and display a greater or less proportion of economy, skill, industry, &c. by no means unworthy of being more minutely attended to. Of the wild bees there are certain natural families, whose distinctive characters, in a scientific point of view, have been described already; they are distinguished also by their manu-
A circular plane, composed of many of these little tubes, forms the basis on which it is to be erected; it contains from three to eight cells, which are similar to each other in their form, and equal in dimensions. Each cell is about an inch in length, and six lines in diameter; and, before its office is finished, in form resemble a thimble. When its walls are raised to a sufficient height, our little mason lays up in it a flour of pollen seasoned with honey, for the influence of its future inhabitants; sometimes the provision of honey is so great that this provision is entirely liquid. This business finished, the deposits her eggs, finishes and covers in the cell, and then proceeds to the erection of a second, which the furnishes and finishes in the same manner, and so on with respect to the whole net. These cells are not placed in a line, or any regular order; for are parallel with the wall, others are perpendicular to it, and others are inclined to it at different angles; this occasion some empty spaces between the cells, which this labours and fills up with the same kind of cement, and then hains on the whole group a common covering, made with water and grains of sand; to that at length the net becomes a mass of mortar, very hard, and not easily penetrated, even by the blade of a knife; its form is more or less oblong; its colour depends on the colour of the sand employed in its construction. Another species forms its nests, with earth intermixed with chalk, upon stone walls; and a third for the sake of greater security prefers the hollows and cavities in the stone itself for this purpose.

Bees, Wild Honey, Hunting of. In the Philosophical Transactions, No. 376, Mr. Dudley speaks of a method of hunting bees in order to discover the spot in which their nests are sequestered, as practiced some years ago in the woods of New England in America. It confines merely in catching a bee, then letting it fly, and daily observing the way to which it directs its course; this points out to the hunter the direction in which the nest is to be sought after. To find the distance, he takes an off-set of an hundred perches, and then lets fly another bee, but which must be of the same nest; and it is ascertained, that the angle or point where these two coincide intersect, is the point at which the nest is concealed.

Bees, Swarming and the Bee Swarm. Few numbers have written on bees. Among the ancients, Aristophanes is said to have studied them sixty years. Philistines retired into a desert wood, that he might have the opportunity of observing them to better advantage; Aristotle made a great number of curious observations on this insect, which Virgil has put into Latin verse; they have been enlarged and continued by Pliny and others. Theophrastus has a fragment fall in Latin, "Lib. de natura rerum," concerning bees. Laws, and custom in the bee, having a bee swarm in the bee. Among the moderns, the number of writers who have treated on bees is very great, a few only of which it will be expedient to place in mention. Prince Frederick Carl, tutor to the Roman Academy of Sciences, wrote especially on bees, and deduced an important reason, in fact, on the part of the bee in the production of honey. He had not the one to the production of the future man, or of insects, nor the right to provide a force. All his had to be, not entirely of a kind of matter, the basis of their work and food; and, very cunning in the choice of it, they pass from such a centre, a force made to turn. To flatten her letters I, there for example, of a kind of the, with which he for a time made to turn. To flatten her letters, there for 3. But, in this case, a little, to the spot has fixed upon for the sake of her child.
been published on the continent within the last few years: of this description are the work of Huber of Geneva; "Le
Mémoire de Bernard sur l'Education des Abeilles," "Le
cours d'Agriculture," by Roter; "Abregé de l'histoire
Infestes pour servir l'Histoire Naturelle des Abeilles," by
Bazin Gilles Augustin, first published in 1747; "Le
Manuel Nécessaire au Villageois pour Soigner les Abeilles,
by Lombard; and the works of Berthaud, Duchet, Ducarne,
Bauny, Della Rocca, &c.

**BEE** in *Agriculture*. See APIS.

Bee is also used figuratively to denote sweetness, industry, &c. Thus Xenophon calls the Attic bee, on account of the
great sweetness of his style. Antonius got the denomination
melifera, or bee, on account of his collection of common places.

Leo Allatius gave the appellation of apes urbano to the illu-
lustrious men at Rome, from the year 1639 to the year 1632.

**Bee-bird**, in *Ornithology*. See Trochilus minutus; the
bee humming bird, or le flut piti officie du monde of Buffon.

Some refer this name likewise to Trochilus Bicolor of
Gmelin, the *Calidris* of F. S. Surin. **2.**

**Bee, Black.** See ATHITHOS.

**Bee-Blocks.** See Blocks.

**Bee-box.** See Hive.

**Bee-bread.** See Bee Bread, FARINA, and Bee supera.

**Bee-eater**, in *Ornithology*. See Falco Apivorus, Honey
Daisy.

**Bee-flower**, or *Orchis*, in *Botany*. See OFRYSIS.

**Bee-gum**, a soft unctuous matter employed by bees to ce-
ment the combs to the hives, and to close up the cells.

**Bee-bee.** See Hive.

**Bee-humble, humming bee**, wild bee, synonymous with the
Bourdon family of bees, adopted by French writers.

**Bee-humble fly.** See Bombus.

**Bee, Order of**, was instituted at Sceaux in France, for men
and women, in 1703, by Louise, wife of Louis of Bourbon.

The enigma is a medal of gold, bearing on one side the portrait of
the foundress, and on the other a bee, with this motto, 
"Je suis petite, mais mes pictures font profondes."

**Bee-rocks**, in *Geography*, lie on the coast of France, a little
to the west of North from the point of St. Malo. They are
called the Great and Little Bee; the latter of which is well
of the other, and lies N. W. from the town about a gun-shot.

On each of the bee-rocks is a little house. Ships may fall
within a cable's length of the outermost Little Bee, and an-
chor on the south of it in 5 or 6 fathoms at low-water, when
Bore tower, on the south of St. Malo, is a little caft of the
smallest tower on the point to the south of the town.

**BEECH-TREE**, in *Botany*. See Fagus

**Beech-galls**, in *Natural History*, the name of a species of
galls or protuberances found on the bee-ch-tree, and serving
for the lodgment of insects.

These galls are found on the leaves of the beech, and are
sometimes only upon a leaf, sometimes more; they always
grow from the same point, owing, no doubt, to the fly's
having laid so many eggs in the same spot.

These galls are of an oblong figure, and somewhat flattened.
They resemble the flone of a plum in shape, and are so hard
that they are not to be broken between the fingers; their
fullsence feems of the same nature with that of a nut shell.

In each gall there is only one cavity, inhabited by a white
worm, which in time passes through the nymph flate into
that of the fly, to which it owed its origin.

**Beech-meat**, the fruit of the bee-ch-tree. It fattens hogs
and deer, and has sometimes supplexed men instead of bread.

Chios is said to have endured a memorable feige by means of it.

**Beech, Oil of, Huile de Faine**, the fruit of this tree, the
bee-ch-meat, is an oily farinaceous nut highly nutritious to
hogs, poultry, and other animals, and like the other fruits
of this description may be made to yield a very large quantity
of pure oil by preffure. This oil has long been prepared in
der the districts in the south of France. An interesting ac-
count of this manufacture is published in the *Journal de
Physique* for 1781, by Mr. Verdiere.

The taste of the beech-meat is mild, intimate, and some-
what alluring. About the month of October it falls sponta-
enously from the tree, and is collected in this and the suc-
ceeding month. When gathered and picked it is slowly
dried in the shade, or with the heat of a very dry fove
after which it is at any time fit to be preffed for oil. The
very finest oil is made with the bell nuts picked out by hand,
but for the larger quantity the malt is lifted and winnowed
like corn. It is then ground by a machine similar to the ramping
mill, formed of upright beams of wood alternately rising and
falling, set on motion by a large wheel, and when the fruit
goes too dry in the mill a little water is added. When ground
sufficiently fine, it is wrapped up in a coarse hair cloth once
dobled, and submitted to the same kind of press which is
employed for cakedeed, and other oils.

The beech oil, when well made, and from the best selected
fruit, is equal to the best olive oil, and with this advantage,
that it will keep much longer, olive oil beginning to grow
rancid in about a year and a half, whereas the other improves
by keeping, to the sixth or eighth year. It is fit for use a
month after it is made. To obtain the finest oil, besides the
perfection of the fruit, it is necessary that the working of the
mill in which it is ground, should be very moderate, as not
to overheat it.

The water used to give the fruit a proper confinence in
grinding, mixes with the oil when preffed, so that it requires
some weeks to separate it. In general the oil flands about three months to clarify, after which it is
drawn off clear from the water and dregs, and packed up
either in bottles or in very close casks. The general yield of
oil is about ten pounds from 41 bushels, Paris measure.

The uses to which it is applied are all those of the common
fixed vegetable oil. The bell forts are equally grateful for
the table as the bell olive oil. The inferior are used for
lamps, for preparing leather, and other purposes of economy
and manufacture.

The cakes that remain after the oil is preffed out are par-
cularly useful in the fabrication of the oil from nuts, as this
latter fruit is not alone of a proper confinence for the pre-
f, but must be mixed with some more solid fubftance to make
it work well. Besides this, the cakes of beech-meat are
proper for fattening animals, or make a very good fuel.

An attempt was made in the beginning of the last century
to introduce the preparation of beech malt oil in this coun-
try. The poet and speculator, Aaron Hill, obtained a pa-
tent for this manufacture, and went to some expense in estab-
lishing it in England about the year 1714. It would ap-
pear from a letter of his to the earl of Chelthusfield (in the
Harlam Collection, and infants in the Monthly Magazine
for 1765, p. 559) that he had formed very方案 hope
in the success of this plan. However he was obliged soon
to abandon it, probably in part a want of a proper sup-
ply of the fruit, and certainly in a considerable degree from
the very limited use of oil as an article of food in this country.

**BEEF**, in *Domestick Economy*, the flesh of black cattle
prepared for food. The flesh of the heifer or ox hind, says Dr.
Cullen (Med. vol. i. p. 369,) is the most deafe of all the
quadrupeds; and how far that densiy goes in preventing fo-
libility, we have an instance in the bull, whose flesh is seldom
chosen as a part of our diet. The flesh of the female sex is
of a more foluble nature, and sufficiently fit for nourishment;
but we commonly prefer the castrated ox, in which the fat
is better mixed, and as more alkalefcent, the flesh is more
fapid;
BEETLE, is the Eng. name of *D父母非洲.*, a bird found on the banks of the rivers in Senegal, and the only species of the genus known. See BEEF.

BEETLE, in Geography, a small island near the coast of America, in the south-east angle of the bay of Campeachy, the west end of which is washed by the easterly opening of St. Peter and Paul river. It lies close to Tintal island, is five leagues long, and from 3 to 4 broad, and has a fair sandy bay, where ships may ride in 7 or 8 fathoms and be well sheltered. N. lat. 18 30. W. long. 91 30.

BEETLE is also one of the smaller Virgin islands in the West Indies, situated between Dog Island on the west, and Tortola on the east, near Francis Drake's bay. It is about five miles long, and one broad. N. lat. 18 23. W. long. 63 2.

BEERMAN, a considerable township of America in Dutchess county, New York, containing 3,597 inhabitants, including 106 slaves. In the State census of 1790, there appear to be 52 electors in this township.

BEEL, in *Mansio*, an instrument used by the workmen to break a pit in the rock in which it lies. This instrument is called by the townsmen in Cornwall a "tubber." It is an iron instrument of eight or ten pounds weight, made thin, and fixed at both ends, and having a hole in the middle, where the handle is fixed in. When the ore lies in hard rock, this instrument wears out so fast, that it must have new points made to it every fortnight. The miners who dig up the ore in the mines, are, from the use of this instrument, called seek-men; and those who attend them, and whose business it is to take up the matter the others loosen or break up, are, from their instrument, which is a broad and hollow iron chisel, or a wooden one, with a very strong iron lip, called the "shovellers." In Cornwall, when the ore lies in a hard bed, they allow two shovellers to three seek-men; and when it lies in a soft and earthy matter, two seek-men and three shovellers are the proportion. Phil. Trans. N. 69. p. 210.

BEELIKE, in Geography, a town of Germany, in the circle of the Lower Rhine, and duchy of Westphalia, 4 and 1/2 miles from Rendsen, and 1 E.N.E. of Andernach.

BEELZEBUB, or BEELZEBUB, in *Abend Myst.* was a god of the Philistines, and had a temple and oracle at Ekron. (2 Kings i. 2.) From this point it is said that the name was not given to this object till it was worshipped by way of contempt; because it was used by Abijah at the very time when he was acknowledging the divinity, and defirous of conducting his cause in a recovery. There is further evident, from the meaning of the epithet, and the sake of it being gen. History affords us, that those who lived in hot climates, and where the sea was not, which was the case with the Egyptians, who bordered upon the sea, were exceedingly infidet with fish; and these facts were thought to occasion contiguous disagreement. *Pliny* (N. H. I. c. x. c. 28. § 40.) mentions a people who popped a pedestal which had been there established by sacrificing to the "fly-hunting god." It seems not improbable that some injured care of the Lord, or a general persuasion of his power of driving away from the place they frequented, might be the reason why the god of Ekron was called Beelzebub. For it was customary with the heathens, to call their gods by the name of those infested from which they were beloved to deliver their worshippers. The "god of flies," and the "fly-hunter," were titles ascribed to Jupiter as well as to Hercules. Indeed, some of the Greek fathers thought that this "fly-god" was worshipped under the form of a fly; and it is observed by Mr. Young (on Idolatry, vol. ii. p. 91, 92.) that it was customary with the heathens to represent their gods by some creatures that were sacred to them. However, the supposed power of this god over that noxious insect, the fly, seems to be the most probable reason of the name of Beelzebub. Beelzebub, therefore, being a title of honour, and as such applied by his worshippers to the god of Ekron, there is no reason for doubting, that it was in use among the Philistines, as well as among the Jews. (Bochart, vol. ii. p. 56, &c. Op. vol. iii. p. 502. Hhi de Drev. Scr. Soc. Beng. ii. c. 6. p. 222. ed. Amil. 1660.) Among the Jews the appellations Beelzebub, notwithstanding its feeble merit, could not be used as a term of derision. For the Jews had learned of the heathens to regard a power of driving away flies, as a divine prerogative: as a charge to persuade men, that the temple of Jerusalem, though many sacrifices were daily offered there, never had a fly upon it: thus coupling, rather than deriling, what the heathens failed concerning some of their temples, into which, according to Pinyi, Solomon, and others, no fly could enter. It has been laid, indeed, that the Greek word used in the New Testament, is not "Beelzebub," but "Beelzebul," which signifies the "lord of a dunghill," and hence it has been inferred, that this name could not have been used by the Hebrs; but must have been given by the Jews in derision. Jerom, however, not understanding the common usage, changed Beelzebub into Beelzebul, and this blunder has been approved by several critics, has been adopted by the vulgate, and then transferred into Luther's translation. In the ancient language, it was not uncommon to change b into l (see letter BL.) and, on this supposition, the Greek word will agree with the Hebrew, (2 Kings i. 2.) But if Beelzebub be used as a different name from Beelzebul, there will be no reason for supposing that it was used by the Jews as an expression of contempt. The Hebrew word בֶּלֶזֶבּוּל, properly signifies a "habitation," and as Stockius observes, is applied to the heavens, the maids of the deity. In this sense it will agree with the title of Bel, man, or Beelam, the "lord of heaven," which the Erunomans, and other Physicians, gave to their supreme name. Whether, therefore, Beelzebub and Beelzebul be different names, or the same name with different terminations, they describe the person whom the Hebrans regarded as their chief deity.

Beelzebub, in the New Testament, (Matt. xvii. 24. Mark, x. 39.) is called בֵּלֶזֶבּוּל, the prince of demons, (prince of the devil, Eng. Transl.). And it has been commonly apprehended, that demons and the prince are the same spirit in the devil and his angels. Satan and Beelzebub, say those that adopt this opinion, (See Doddridge on Matt. xvii. 25.) for after Chri was approached with writting out demons by the influence of the present day, he replied, "How can Satan cast out Satan?" (Matt. x. 26. Mark, v. 23. Luke, xi. 15.) Now if Satan, who is called the prince of the demons with the devil (Rev. xii. 12. Matt. x. i. compared with Mark, i. 12.) was the prince of these demons who were cast out by Chri; it is evident that the name Satan is the name of the devil's angel. And as it is necessary, there can be two different names that name the same thing, it is hard to conceive that which is implied between a prince and his lodges, who both partake of one common nature, through the prince, as presiding over the evil, hath a peculiar name of his own. Dr. Lordi (Cate of Dictionaries, p. 42. Works, vol. i. p. 48.)
p. 448.) admits, that the devil, who is supposed to be the chief or prince of the fallen angels, is often called Satan and Beelzebub. Mr. Farmer is of opinion (Essay on the Demonology of the N. T. p. 16.) that it doth not follow from the above cited passages, that the devil is ever called Beelzebub. The term “Satan,” he says, is not appropriated to one particular person or spirit, but signifies “an adversary” or opponent, in general. The Jews called every demon by this name, and used it in the plural number; and the words of our Saviour, “How can Satan cast out Satan,” taken in their strictest sense, imply that there were several Satans; so that our Lord might only mean, “that it was unreasonable to suppose that one demon would cast out another.” Or if you understand him to the following purpose: “were Beelzebub, whom you regard as the chief of the possessing demons, to expel himself, which would in effect be the case were he to expel his agents and instruments, he would act against his own interest, and defeat his own schemes;” it will not follow, that Beelzebub was considered as the same person with the devil. There seems to be no reference to the latter. He and Beelzebub might be regarded as two distinct persons; and yet each be called “Satan,” an adversary, or opponent. “If Beelzebub and his demons were, in our Saviour’s time, conceived to be the very same persons as the devil and his angels, is it not very surprising,” says this author, “that the New Testament, in its original language, should always speak of the dicing persons under consideration as possessed by a “demon” or “demons,” and never by “the devil” or “devils” a word, as all must allow, that is never there applied to evil spirits in the plural number, whatever its use may be in the singular. He adds, “as much as Christ is here replying to the Pharisees, and reproofing them with their own principles, he cannot be supposing to speak of a different order of beings from what they did. Satan, therefore, must be equivalent to demon, in the sense in which demon was used by them.” See Demon. “Should it then appear,” says Mr. Farmer, “that by demons and their princes they understood human spirits, it will from hence follow, that Christ cannot be speaking of spirits of a celestial origin.” If by the devil we are to understand a fallen angel, this writer thinks that he could not be the same with Beelzebub. The Jews, in their ancient writings, were not accustomed to call the devil by this name, but that of Asmodeus, or Samuel; as Bochart, (Oper. vol. iii. p. 527.) Selden, (ubi supra, p. 231.) and others allow. Beelzebub, in the enumeration of the Pharisees, was the prince of the “possessing demons;” and therefore, as Mr. Farmer supposes, he was, in their estimation, a human spirit; and in proof of this he alleges the testimony of Josephus (De Bell. Jud. l. ii. c. 6. § 3). Besides Beelzebub was, as we have already stated, a heathen deity; expressly denominated in the Old Testament, the god of Ekron; and represented by the Pharisees under the same title and character as the heathens themselves ascribed to their gods. “If Beelzebub,” fuljoints Mr. Farmer, “was a heathen demon, or deity, he was no other than a deified human spirit: for fishes were all the heathen demons, who were the immediate objects of the public established worship; and those in particular to whom divination and oracles were ascribed. And if the prince of demons was of human extract, no doubt his subjects were so likewise.

**BEELZEBUL** in Entomology, a species of Scarabæus that inhabits America. On the thorax is a triple prominence; and three horns on the head, the middle one larger than the others. Fabricius.

**BEELZEBUL** in Zoology, a species of Simia that inhabits South America; and is tailed, bearded, and black; tail prehensile; tip, with the feet, brown. Linnaeus. This appears to be the guarila of Meargrave; blazing baboon of Bankcroft; preacher monkey of Remnant; and laouarme of Buffon. It is said to be about the size of a fox, of a black colour, and the hair of its long, glossy, and remarkably smooth. This is a fierce animal, and inhabits the woods of Brazil, and Guiana, in vast numbers; wanders in large flocks in the night time, and howls hideously. Dr. Shaw observes, that this howling facility is owing to the conformity of the os hyoidei, or throat bone, which is dilated into a bottle-shaped cavity. Meargrave, in speaking of the guarila, acquaints us that one sometimes mounts the top of a branch, and assembles a multitude below; he then sets up a howl so loud and horrible, that a person at a distance would imagine that a hundred joined in the cry; after a certain space, he gives a signal with his hand, when the whole assembly join in chorus, but on another signal, a sudden silence prevails, and then the orator finishes his harangue. Virey calls this animal Beelzebub, retaining however at the same time the name laouarme, under which it is described by Buffon.

**BEEMAH,** in Geography, a river of Hindostan, which is a principal branch of the Kishah, joining it near Edgin, rises in the mountains, on the north of Poonah, probably not far from the sources of the Godavery, and passes within 30 miles of the coast side of Poonah, where it is named Beemah as well as Beemah. It forms the eastern boundary of Hindostan, and passes about 20 or 82 geographical miles to the west of Golconda, crossing the road from it to Railcote. The Beemah, according to Mr. Orme, pollutes virtues similar to those of the rivers esteemed sacred by the Hindoos: that is, abutions performed in its stream have a religious efficacy superior to those performed in ordinary streams. Kennell’s Memoir, p. 244, &c.

**BEEMEN,** or **SHEEMEN,** in Astronomy, seven stars of the fourth magnitude, following each other, in the fourth figure of the constellation Eridanus.

**BEEMSTER,** in Geography, a large drained lake or marsh of North Holland. It was formerly a lake, covering a great extent of country, which, by the industry of the Hollander, who, by means of various canals, have drained the waters, is converted into an excellent pasturage ground. It has neither towns nor villages, but a great number of hovels, which are dispersed along the sides of the canals and roads.

**BEEN,** in Music, the name of an Indian flatted instrument of the guitar kind. The finger-board is 24 inches long. A little beyond each end of the finger-board are two gourds, and beyond these are the pegs and half-piece which hold the wires. The whole length of the instrument is three feet seven inches. The first gourd is fixed at ten inches from the top, and the second at about two feet 11 inches. The gourds are very large, about fourteen inches diameter, and have a round piece cut out of the bottom, about five inches diameter. The finger-board is about two inches wide. The wires are seven in number, and consist of two steel ones, very close together, in the right side; four brass ones on the finger-board; and one brass one on the left side. They are tuned in the following manner.
The great singularity of this instrument is the height of the frets; that nearest the nut is one inch, and that at the other extremity about 2½ in. of an inch, and the decrease is pretty gradual. By this means the finger never touches the finger-board itself. The frets are fixed on with wax by the performer himself, which he does entirely by ear.

The frets are nineteen in number. On the wires R and S, which are those principally used, there is an extent of two octaves, a whole note with all the half notes complete in the first octave, but the and are wanting in the second. The performer's apology for this was, that he could easily get those notes by placing the string a little hard upon the frets, &c., which is very true from the height of the frets; but he adhere to that this was no defect in his particular instrument, but that all beaux were made to. The wires, T, U, are seldom used, except open.

The bow is held over the left shoulder, the upper ground resting on that shoulder, and the lower one on the right knee.

The frets are fitted with the left-hand; the first and second fingers are principally used. The little finger of this hand is sometimes used to strike the note V. The third finger is seldom used, the hand shifting up and down the finger-board with great rapidity. The fingers of the right hand are used to strike the strings of this hand; the third finger is never used. The two first fingers strikes the wires on the finger-board, and the little fingers the two wires. The two first fingers of this hand are defended by a piece of wire put on the tops of them in the manner of a thimbike; when the performer plays strong, this causes a very jarring disagreeable sound; whereas, when he plays softly, the tone of the instrument is remarkably pleasing.

The style of music on this instrument is in general that of great execution. The bowing is very regular and subject. The bow has to consist of a number of detached passages, some very regular in their accent and deficient; and those that are played softly, are all of them both uncommon and pleasing. Adam Raffeld, vol. 1, p. 159. See Plate of Muff.

BEEF, a spirituous liquor, made from any farinaceous grain; but generally from barley. Accordingly, it is a liquor of very ancient and general use. See Ale.

The word is Saxon, formed from the German bier, of the Latin bebrew.

Several authors have maintained, that there was no malt liquor known by the appellation of beer, as distinguished from the ancient liquor called ale, till the use of hops was introduced. See Hops. However, we find, by a statute of the twelfth parliament of the 23d year of the reign of Henry VIII, (c. 88.), that it was enacted, that no person should mix wine or beer, under pain of death. Besides this statute, occurring in 1492, many others might be produced confuting the vulgar tradition, that beer, as a liquor, distinct from ale, was unknown in England till the reign of Henry VIII. In the year 1492, we find a licence from King Henry VII, to a London brewery, for the use of the 

Beer is made from malt by extraction with water and fermentation. With this view, a quantity of malt, freed from its germs, and sufficient for one intended brewing, is carefully bruised by grinding, and in the malt-tub, first well mixed with some cold, then heated with hot water drawn upon it from the boiler. It is afterwards strongly and uniformly stirred. When the whole mass has fluid quietly for a certain time, the extract (mash), or sweet-wort, is brought into the boiler; and the malt remaining in the tub is once more extracted by infusion with hot water. This second extract, treated in the same manner, is added to the first, and both are boiled together. This clear decoction is now drawn off, and called boiled wort. To make the beer more fit for digestion, and at the same time to deprive it of its too great and unpleasant sweetness, the wort is mixed with a decoction of hops, or else these are boiled with it. After which it ought to be quickly cooled, to prevent its transition into acetic fermentation, which would cause, if it were kept too long in a high temperature. On this account, the wort is transferred into the cooler; where it is exposed with a large surface to cold air, and from this to the fermenting tub, that by addition of a sufficient portion of recent yeast it may begin to ferment. When this fermentation has proceeded to a due degree, and the yeast ceases to rise, the beer is conveyed into casks, placed in cool cellars, where it finishes its fermentation, and where it is well kept and preserved under the name of "barrelled beer," with the precaution of occasionally filling up the vacancy caused in the vessels by evaporation. Or, the beer is bottled before it has done fermenting; and the bottles are flopped a little before the fermentation is completely over. By doing the bottled beer is rendered sparkling. In this state it frequently burfts the bottles, by the distingagement of the carbonic acid gas which it contains; and it strongly froths, like champagne, when brought into contact with air on being poured into another vessel. Gren's Chymistry, vol. ii. p. 63.

For the proofs of brewing, particularly according to the English mode; see Brewing. Beer, well prepared, should be lambid and clear, possess a due quantity of spirit, excite no disagreeable sweet taste, and contain no diengaged acid. By these properties, it is a species of vinous beverage, and is distinguished from wine, in the first fine, and other liquors of that kind, by the much greater quantity of mucilaginous matter which it has received by extraction from the malted grains; but which also renders it more nourishing. "Brown beer" derives its colour from malt strongly roasted in the kiln, and its bitterish taste from the hops. "Pale beer" is brewed from malt dried in the air, or but lightly roasted, with but little or no hops at all.

Tacitus, in speaking of the ancient Germans, as also Dioscorides, Cebren, &c., commend beer, as prejudicial to the head, nerves, and membranous parts, as occasioning a more lasting and more uneasy drink than wine, and as promoting a suppression of urine, and sometimes a leprosy.

Meff. Perrault, Ramelli, and others, defend the modern beer: urging, that the hops used with it, and which the ancients were strangers to, having a faculty of purifying the blood, and removing obstructions, serve as a corrective, and free our drink from the leavening matter collected to that of the ancient. For the qualities of beer, see Malt-Liquor.

In new England they make beer from maize, or even the bread made thereof. Some physicians recommend beer made of oats and birch-water, as preferable, in nephritic cases.

Mr. Park, in the account of his travels through Africa, informs us, that the negroes make excellent beer of one piece of their corn, by making the seeds nearly in the same manner as barley is malted in England; and he says, that the beer, thus made, was to his taste equal to the best strong beer he had ever tasted in his native country.

Sour or decocted beer may be restored divers ways; as by sail malted of the ashes of barley-straw, put into the vessel, and stirred; or by three or four handfuls of beech-ashes thrown into the vessel, and stirred; or, where the liquor is not very thin, by a little put into a bag, without straining; chalk calcined, ouder-shells, egg-shells burnt, sea-shells, crabs eyes, alkali-coral, &c. to the fame, as they imbibe the acidity, and unite with it in a sweetness. Beer, it is said, may be kept from turning four in summer by hanging into the vessel a bag containing a new-laid egg, pricked full of little pin-holes, some laurel-berris, and a few barley-grains; or by a new-laid egg and walnut-tree leaves. Laurel berries alone, their skin being peeled off, will keep beer from deadseas; and the throwing fixed air into it will restore it. Glauer commands his false mirabilis and fixed nitre, put into a linen bag, and hung on the top of the cellar, so as to reach the liquor, not only for recovering four beer, but for preferring and strengthening it. See Ale.

Beer tasting of the calf, may be freed from it, by putting a handful of wheat in a bag, and hanging it into the vessel. The grounds of beer form a very rich manure.

Beer Poetic. See Zythogalia.

Beer, Eager, is used by calico-printers, chemists, larderaries, scarlet dyers, vine-ar merchants, white-leden men, &c. Beer-Measure. See Measure.

Beer-Vinegar. See Vinegar.

Beer Haven, in Geography. See Bear-Haven.

BEERING, BEHING, or BEERING, VITUS, in Geography, an eminent navigator, was a native of Denmark, and born towards the conclusion of the 17th century. After having made two voyages to India, he entered in 1704, as a lieutenant in the Russian navy, in which he afterwards rose to the rank of captain and commodore. In pursuance of a plan conceived by Peter I., and communicated on his deathbed to Beering, for making discoveries in that temperate sea which lies between Kamtchata and America, this adventurous navigator set sail in 1728, accompanied by Tschirikof, from the mouth of the Kamtchata river, with a view of ascertaining whether the two continents of Asia and America were separated, according to the instructions prepared by Peter I. on his death-bed for this purpose. Coasting along the eastern shore of Siberia, he arrived at the latitude of 67° 18', but made no discovery of the opposite continent. In 1729, soon after his return, he failed again in prosecution of the same design, but without success. A third expedition was planned in 1744, and the conduct of it was entrusted to Beering and Tschirikof, who encountered many difficulties, and paved the way to all the important discoveries afterwards made by the Russians.

Two vessels, named the St. Peter, and St. Paul, were defined for this enterprise; the former was commanded by capt. Beering, and had on board 76 persons, including officers, and the latter by capt. Tschirikof, accompanied by Delles, professor of astronomy, and the same number of mariners. From the bay of Awatsha, where they left on the 4th of June, they proceeded northwards; and the vessels parted in a storm, and never more saw one another during the voyage. Beering steered in a southern direction from the 50th to the 40th degree of latitude in search of Tschirikof, but finding the search to be fruitless, he directed his course easterly, and at the end of six weeks from the time of first sailing, deferred land in the latitude of 59° and some minutes, and in the longitude of 40° from Awatsha. On the 25th of July they anchored among some islands, on one of which they landed; but they neglected to accomplish the main object of their mission, which was the discovery of the American coast, which afterwards appeared to be so near their present station. This omission seems to have been owing to the discontent and infurbickation that prevailed among the crew and officers of the ship. Having observed several islands in the course of their voyage; they, at length, viz. on the 6th of November, found themselves, as they apprehended, on the coast of Kamtchata, near the bay of Awatsha; but the land which they perceived proved to be an island, on which the ship was wrecked, and where the commander, and several of the crew, died soon after their landing, on the scurvy, famine, and fatigued, Steller, who accompanied Beering, and wrote a journal of the voyage, observes, in justice to the commodore, that he exerted himself to the utmost of his ability in executing the design of his mission, but that he was himself conscious of his unfaults for the arduous task on account of his age and infirmity. His temper was too mild for the government of a disorderly crew: and his deference to his officers led them to presume on their own importance, and to despise his authority. Worn out at last with hunger, thirst, cold, weakness, and anxiety, the cedematous tumours in his feet, from which he had long suffered, increased by the frequency of the weather, and a mortification of the belly taking place, he breathed his last on the 5th of December, and was buried between his adjutant commissary and two grenadiers. "On our departure from the island," says Steller, "we erected over the grave a wooden cross to serve as a monument, and at the same time to be a testimony of our having taken possession of the country." Steller alleges several arguments to prove that Beering discovered the continent of America, at Cape St. Elias, lying, according to his calculation, in N. lat. 58° 28', and in longitude from Ferro 235°; and that the coast touched at by Tschirikof was situated in lat. 58° 20', and 241'. The coast, says Steller, were bold, projecting chains of high mountains, some of which were covered with snow, and their sides clothed from the bottom to the top with large tracts of thick and bare wood. Steller went on shore and observed several species of birds not known in Siberia, and one in particular, described by Catesby under the name of the blue jay, peculiar to North America. The soil was different from that of Kamtchata, and of the neighbouring islands, and he found several plants which botanists deem peculiar to America.

Besides, it has been alleged that they must at least have approached very near that continent; as the natives of the islands on which they touched, presented to them the "calumet" or pipe of peace, which is a symbol of friendliness universal among the people of North America, and an usage of arbitrary inquisition peculiar to them. Soon after the return of Beering's crew from the island, where he was shipwrecked and died, the inhabitants of Kamtchata ventured over to that island, to which the sea-otters and other sea-animals were accustomed to resort in great numbers. Steller's Journal apud Pallis. Coxe's Russian Discoveries, p. 20. p. 275. &c. Tookes's View of the Russian Empire, vol. i. p. 156, vol. ii. p. 40. p. 499. See Asia, and the following articles, Beering's haven, &c.

Beering's Haven, in Geography, a name given in honour of commodore Beering, to that part of the North Pacific Ocean, compre-
comprehending about 1200 leagues in circuit, which is formed by the Archipelago, called the Aleutian; Aleutitic islands, with the north-west coast of America, and the north-east coast of Asia, and which communicates towards the south with the great Boreal ocean by as many straits as the islands form channels between them, and towards the north, under the 66th parallel, with the Arctic Ocean, by Birning's Straits alone. See Aleutian.

Birning's, or Birning's Bay, a bay on the north-west coast of America, situated between Cape Suckling and Cape Fair-weather, and so called in honour of commodore Birning, who, in 1741, discovered this bay, and anchored in it. The extreme points of this bay, in Vancouver's chart, are port Manby and port Turner; cape Phipps lies to the south of it, and port Mulgrave, formed by islands, and affording a convenient anchoring place secure from all winds, is situated within the bay. In this part of the bay, Birning is supposed to have anchored. Birning's mount, St. Elias, lies at a small distance to the north of this bay. Mr. Dixon called it Admiralty Bay. La Peroufe describes it under the denomination of Birning River. American captain Cook, the opening of this bay was in N. lat. 57° 18'; and la Peroufe makes it 59° 20'. Cook's longitude was 220° 19' E. or 135° 41' W. 142° 1' W. from the meridian of Paris. La Peroufe fixes his longitude at 143° 2', making only a difference of 1' from that of Cook. Vancouver, who reconnoitred this coast more accurately than Capt. Cook, had an opportunity of doing, as he passed it at some distance from the shore, places it further to the north and west, its opening being about 59° 32', and E. long. 220° 35'.

Birning's Island, an island in the north Pacific ocean on the north-east of Kamtschatka, which some have considered as one of the groups, called the Aleutian isles, or "Aleutian" and others have separated from it. This island was discovered by Birning in 1741. This adventurous navigator, having been for some time in a state of indisposition and decay, was unable to concern himself about the management of his ship, and his crew were generally attacked by the fevers, and in a sickly, exhausted condition. Pursuing their navigation, they were at length driven by the winds and seas on this island, with the intention of which, with regard to the two continents, they were unacquainted, and here the ship was cast away. On the 8th of December, Birning died on this island, which has very properly assumed the name of the first navigator who ventured into these seas, and who discovered the west continent of America, in a latitude which, before him, no known voyager had attained. In the following year, the surviving crew continued with great trouble, to construct a boat, which conveyed them to Kamtschatka. This island is situated between the north latitude of 55° and 56°, and E. long. 167° 25', about 50 leagues from the coast of Kamtschatka. It is 165 miles in length, and of various breadths, the greatest breadth being 23 miles; and it consists of a range of bold cliffs and hills, which, separated by several very narrow valleys, being north and south, extend from the sea like a jagged rock. The highest of these mountains are elevated perpendicularly, not above a hundred fathoms, covered with a yellow clay, and much sage by larvino element and weather. The main entrance is composed of granite; the rocks are enveloped that land near the sea, which are strongmoss of turquoise, and form out incessantly, these valleys, that are very steep. In these mountains there are many caverns. In the year 1741, three small pieces of earthquake were perceived in this island; the earth is not covered with ice, and the cold is not great; in fact, although there are mountains on the shore, few near it, Neither thunder nor the aurora borealis has been observed here. The island has springs of excellent water, and beautiful estuaries. Of animals there are only foxes, seals, sea-bears, sea-lions, sea-cows, &c. No wood grows upon this island; but several kinds of plants are found upon it. It is uninhabited. The ships which have been accustomed to navigate these seas have frequently wintered on this island, in order to procure a stock of salted provisions from the sea-cows and other amphibious animals, that are found here in great abundance. Tooko's View of the Russian Empire, vol. i. p. 176, &c. Marchand's Voyage, vol. i. Intro. p. 33.

Birning's Straits, separate Asia from America, being bounded on the American side, by cape Prince of Wales, in N. lat. 67° 50'; E. long. 101° 50', and on the side of Asia, by the cape called in N. lat. 66° 6' and E. long. 190° 22'. The breadth of this strait is about 13 leagues, or near 40 miles; its depth is from 12 to 30 fathoms. It was discovered first by Birning, and afterwards by captain Cook. Birning, in his voyage of 1741, is said to have proceeded as far north as 67° 18', and therefore must have reached the strait, and having driven it about a degree and a quarter than that of the modern chart of the old continent. He had, therefore, entered the Frozen Ocean, and must have actually passed this strait, probably in the usual fog of the climate, without discovering land to the south; however, our great navigator, captain Cook, gave the name of the Danish adventurer to these straits, when he lost his usual accuracy, he afterwards explored them. To the north of these straits the Asiatic shores lead rapidly to the westward; but the American proceeds nearly in a north-east direction, till, at the distance of about 4 or 5 degrees, the continents are joined by solid and impenetrable banks of ice. The sea from the south of these straits to the crescent of islands between Asia and America, is very shallow, and deepens from these straits till foundings are lost in the Pacific ocean, south of these islands. Between them and the straits there is said to be an increase from 12 to 54 fathoms, excepting off Cape Thaddeus, where the channel is of greater depth. From this, and other circumstances, it has been thought not improbable that a separation of the continents may have taken place in some unknown period, at these straits, and that the whole space from the islands to that small opening might once have been dry land; and that the fury of the watery element, actuated by that of fire, might have subverted and overwhelmed the tract, and left the islands as volcanic remains of this great eruption. The famous Japanese map places some islands apparently within these straits, denominated "Ya Zuoo," or the kingdom of the dwarfs. Hence it has been imagined, that America was not unknown to the Japanese, and that they had, as Kempter and Charlevoix have supposed, made voyages of discovery, and according to the last writer, that they had actually wintered upon the continent, where probably meeting with the Equinox, they might, in company with the rest, swiftly disintegrate them by the name of dwarfs. See Asia.

Birero, a Moorish kingdom of Africa, lying to the north of Bambara, and north-west of a Foulah state, called Blafna. Its capital is Watr, According to Mr. Rennell's information, about 240,000 square miles to the west of Benin. In Rennell's map of North Africa, Watr is in N. lat. 15° 45' and W. long. 24° 35'. The kingdom of Birero borders on Sahara, or the Great Desert.

Bireroth, in Ancient Geography, 2 City of the Cis-derites, afterwards of the tribe of Benjamin, Josh. xiv. 11. According to Eusebius, it was distant 7 miles from Jerusalem, in the way towards Nicopolis.

Bireroth, of the children of Jashan, was a nation of the
BEER-SHEBA, called also BERSABE and BARSHEBA, a city given to Joshua to the tribe of Judah, and afterwards transferred to Simon. Josh. xii. 28. It derived its name from יִבְרֶשֶׁבָא ber-esheba, the well of an oath, from the well on which Abraham and Isaac ratified their alliance by an oath with Abimelech. It was distant south from Hebron 20 miles, and had a Roman garrison in the time of Eusebius and Jerom. The limits of the Holy Land are often expressed in Scripture by the terms 'from Dan to Beer-sheba' (2 Sam. xviii. 11. &c.); Dan being the northern and Beer-sheba the southern extremities of the land. It is now a poor village, adjoining a large, sandy, barren desert, altogether uninhabited, except towards the sea-coast.

BEES, in Naval Architecture, pieces of elm-plank bolted to the outer ends of bowsprits.

BELENSTADT, in Geography, a town of Germany, in the circle of Upper Saxony, and county of Mansfield, 6 miles east of Eisleben.

BEER-HEBD, St. a cape of England, in the western extremity of the county of Cumberland, in the Irish sea, about 10 leagues E. by N. from the Isle of Man, and 2 S. of Whitehaven. It has a light-house, and is a noted promontory for fish-fowl. N. lat. 54° 31'. W. long. 40° 43'.

BEESHEN, a town in Germany, in the circle of Westphalia, and county of Lingen.

BEESKOW, a town of Germany, in the circle of Upper Saxony and Uckermark of Brandenburgh, and capital of a lordship, to which it gives name, seated on the Spree; 16 miles S. W. of Frankfort on the Oder, and 34 E. S. E. of Berlin. A cloth manufacture is carried on in this town.

BEES-WAX. See Wax.

BEESTINGS, or BEASTINGS, denote the finest milk taken from a cow after calving.

The beefsteaks are of a thick consistence and yellow colour, seemingly impregnated with sulphur. Dr. Morgan imagines them peculiarly fitted and intended by nature to cleanse the young animal from the excrescences gathered in its stomack and intestines during its long habituation in uto. The like quality and virtues he fupposes in women's first milk after delivery; and hence infers the necessity of the mother's suckling her own child, rather than committing it to a nurse, whose first milk is gone.

BEET, in Botany. See Beta.

BEET, bare's, beta vulgaris, a name given by some of the old Latin writers to a small green plant of an acid taste.

BEET-gall-infest. See GALL-infest.

BEETLE, in Entomology, a common English name for all insects that are furnished with wing-cases: those which have them divided by a straight line are properly beetles, and belong to the coleopterous order; but the blattae, or cock-roaches, are also called beetles, though the future is oblique, or in other words one wing-case crofses the other; and therefore it belongs to the hemiptera order. See Coleoptera. The tarbacin are beetles in the Lëgillus fene of the word.

BEETLES, water, is likewise a common name for those insects that have wing-cases that inhabit the water including the dytici, and some other aquatic insects, that are truly beetles, with such as are not of the same order, such as the nepe, hitoneer, &c. See HEMIPTERA.

BEETLE, in a Mechanical Sense, denotes a large wooden instrument, formed after the manner of the mallet, having each face bound with a strong iron hoop, to keep it from spreading, and used for driving piles, faken, palisades, wedges, and the like.

In this sense, the word is corruptly written in some places boyel. Skinner derives it from the English beating. For the military use, beetles called also flammers, are thick round pieces of wood, a foot and a half long, and eight or ten inches in diameter, having a handle of about four feet long. Their use is for beating or settling the earth of a parapet, or about palisades; which is done by lifting up the beetle a foot or two, and letting it fall with its own weight. The name beetle is also given to the pavilion's rammer, or instrument wherewith the flames are beaten down, and fattened.

BEESVES, a general name for oxen.

BEFARIA, in Botany. See BIFARIA.

BEFORT, in Geography, a town of France, and principal place of a district, in the department of the Upper Rhine, ceded to France by the house of Austria in the year 1748, at the treaty of Westphalia. It was fortified by Vauban. In this town several forges are employed in the manufacture of iron. The place contains 4,400, and the canton 11,439 inhabitants: the country includes 155,305 hectares and 32 communes. N. lat. 47° 9'. E. long. 6° 46'.

BEFROI, GRAND BEFROI, and PETIT BEFROI, in Ornithology, the names of the two species of Turdus, called Linneus and Lineatus by Gmelin, in Buffon's Hill Birds.

BEG, or BEY, in the Turkish Government. See Bey.

BEG, LOUGH, in Geography, or the Little Lough, in the province of Ulster, Ireland, a small lake into which the waters from Lough Neagh again expand, after a course of about a mile, through a very narrow channel. The form of Lough-beg, its islands, some wooded points of land with intervening lawns and rocks, a magnificent rotunda at Ballyfelen, and the beautiful lightness of Toome-bridge, produce the most happy effect. It is situated between the counties of Armagh and Londonderry.

BEGA, or BEEGYN, CORNELIUS, in Biography, a painter and engraver, was born at Haelem in 1620, and became the disciple of Adrian Ollade, whose manner he imitated, and by whose instructions he profited, so as to acquire considerable reputation as a painter. But contracting habits of dilipation and licentiousness, he was disowned by his father, and repenting the indiginity, he assumed the name of Bega instead of Beegyn, which was that of his family. He had a fine pencil, and a delicate mode of handling his colours, so as to give them a neat and transparent appearance; and his performances are so much esteemed in the Low Countries, as to be placed among the works of the best artists. He also etched several drolleries, and a set of 34 prints, representing ale-houfe scenes, &c. His death, which happened in 1664, was occasioned by the plague, which he caught from a favourite female, to whom he was so strongly attached that he visited her, against the remonstrances of his friends and physicians, to the last moments of her life; and he outlived her only a few days. Pilkington and Strutt.

Bega, or VEGA, in Geography, a river in Germany, which runs into the Werra, 4 miles N. W. of Lemu, in the circle of Westphalia.

BEGANNA, in Ancient Geography, a town of Arabi Deferta, in the neighbourhood of Melopotamia. Ptolemy.

BEGARD, in Geography, a town of France, in the department of the Northern coasts, and chief place of a canton in the district of Guingamp; the place contains 2394 and the canton 7864 inhabitants: the territory includes 1024 kilometres, and 7 communes.

BEARMEE, or BACHERMI, supposed to be the "Begama" of Edrin, and the "Ghoram" of D'Anville, an extensive kingdom of Africa, situate S. E. of Bornon, at the distance of about 20 days' travelling, or allowing with major Rennell, 15 miles for a day's journey, 500 miles, and separated from it by several small deferts. Th: extent, according to Browne's Travels in Africa, p. 468, is from
from E. to W. 12 days, and from N. to S. 15 days, allowing 12½ geographical miles per day. The inhabitants are rigid Mahometsans, and though perfectly black in their complexions, are not of the Negro cast. Beyond this kingdom to the east, (see Proceedings of the Association for promoting the discovery of the Interior Parts of Africa, p. 155.) are several tribes of Negroes, idolators in their religion, lavish in their manners, and accustomed, it is said, to feed on human flesh. They are called the Kardes, the Sorowali, the Showvah, the Batak, and the Mulghi. These nations, the Begarmees, who fight on horseback, and are great warriors, usually invade; and when they have taken as many prisoners as opportunity affords, or their purpose may require, they drive the captives like cattle to Begarmee. It is said, that if any of them, weakened by age, or exhausted by fatigue, happen to linger in their pace, one of the horsemens lays on the olden, and cutting off his arm, us it a club to drive on the rest. From Begarmee they are sent to Borron, where they are sold at a low price; and from thence many of them are conveyed to Fozzani, where they generally embrace the Mussulman faith, and are afterwards exported by the way of Tripoli to different parts of the Levant. Begarmee, the capital of the kingdom, is in N. lat. 15° E. long. 15° 30'; according to Remell's Map; but according to Browne, N. lat. 15° 40°. E. long. 22° 35'.

BEGARRA, a town in Spain in New Castile, 4 leagues from Alcazar.

BEGEMDER, a province of Abyssinia, north-east of Tigre, bordering upon Angot, and separated from Amhara, which runs parallel to it on the south, by the river Bahalo. Both these provinces are bounded by the river Nile on the west. The greatest length of Begemder is about 180 miles, and its breadth 60; it comprehends "Lalla," a mountainous province, sometimes depending upon Begemder, and often in rebellion. The inhabitants are deemed the best forgers in Abyssinia, being men of great strength and stature, but cruel and uncivilized, so that they are called, in common conversation and writing, the peasants or barbarians of Lalla. They pay to the king 3,000 ounces of gold.

Several small provinces are now dismembered from Begemder, such as Foggora, a small strip of land reaching south and north about 35 miles between Emfara and Dara, and about 12 miles broad from east to west, from the mountains of Begemder to the lake Tana. On the north end of this are two small governments, Dreda and Karota, the only territory in Abyssinia that produces wine; the merchants trade to Caffa and Narea, in the country of the Galli. Begemder is the strength of Abyssinia in horsemen. It is said that, with Lalla, it can bring out 25,000 men; but this account Bruce thinks to be much exaggerated. It is well stocked with cattle of every kind, that are very beautiful. The mountains are full of iron mines; they are not so deep and rocky as in other provinces, if we except Lalla, and abound in all sorts of wild flesh and game. The south end of the province near Nebras Musa is cut into populous gullies, apparently by floods, of which no history remains. It is the great barrier against the encroachments of the Galli, who have made many attempts to obtain a settlement here, but without success; and they have lost whole tribes in these ineffectual efforts. Begemder is a province of such confidence to the flate, reaching to the metropolis and respecting of all sorts of provisions, that none but noblemen of rank, family, and character, able to maintain a large number of troops always on foot, and in good order, are trusted with its government. It lies in about N. lat. 11° 45', and from 37° 30' to 38° 30' E. long.

BEGER, LACARDE, in Geography, a German antiquarian, was the son of a tailor at Heidelberg, and born in 1653. At the request of his father he fled his theological studies, and afterwards gratified his own inclination by the study of the law. Devoting himself to classical literature and antiquities, he acquired such reputation that, in 1657, he was appointed librarian and keeper of the cabinet of antiquities by Charles Lewis, elector Palatine; and he retained the same office under Frederick William, elector of Brandenburg, to whom the cabinet was transferred in 1685. He was a member of the Society of Berlin from its inception, and died there in 1703. He was the author of various learned works. His "Confederations on Marriage, by Daphneus Accuratus," was written in German, as a defence of polygamy, to gratify the elector Palatine, who wished to marry another lady, to whom he was attached, whilst his wife was living. He afterwards gratified the fond by composing a repetition of this work, which was never printed. The principal of his other works, which relate to history and antiquities, are "Theasaurus ex Thesauri Palatini Selectus," 1683, fol.; "Theasaurus Reg. elect. Brandenburgi Selectus," 5 vols. fol.; "Regnum et Imperator. Roman. Num. mimitata," 1700, fol.; "De Nummis Curtiennum heticulifera,", 1704, fol.; "Lecurum Veternum epilchrales," 1702; "Nummitasa Pontif. Roman. aliquotum rara," 1703, fol.; "Meleagrodes et Etofia," 1696, 4to.; "Crane infra Lacemana," 1696, 4to.; "Bellum et Excidium, Trajanum illust," 1699, 4to.; Moreri.

Laurentius Begar, the nephew of this famous antiquarian, was engraver and home G. residence in Berlin about the year 1703.

BEGAR, in Geography, a town in Spain, in the country of Seville, 14 leagues from Medina Sidonia.

BEGGA, in Entomology, a species of Plaethon, (Bombyx) with white wings, having a black rib. This kind inhabits Surinam. The body is white; antennae and legs yellow, black at the tips. Fabricius, Gmelin, &c.

BEGGAR. Beggars pretending to be blind, lame, &c. found begging in the streets, are to be removed by the constables; and refusing to be removed, shall be whipped, &c. flat. 12 Anne; and our statutes have been formerly to direct for punishing of beggars, that in the reign of king Henry VIII. a law was enacted, that thorny beggars convicted of a second offence should be executed as felons. But this statute was afterwards repealed. See ROGUS and VAGARON.

BEGGING ORDER. See Mendicant.

BEGHARDI, BEGUARDI, of Beggard, in Ecclesiastical History, called also in Italy bicochi, and in France beguins, derive their name from the old German word beggen, beggeren, which signifies "to seek any thing with real and importunity." Accordingly perfons of this description were called Beghardi, whence probably the English word beggar is derived; and Begutte denoted female beggars. This was a general appellation, and given to no less than thirty sets or orders, that sprung up in the thirteenth century, which differed widely from each other in their opinions, discipline, and manner of living. It was at first indifferently applied to all persons who embraced, with repugnance and free choice, the horrors of absolute poverty; begging their daily bread from door to door, and renouncing all their worldly possessions and occupations. It was afterwards restricted to those who dilligently subdued themselves by an extraordinary appearance of devotion, and was used much in the fervent fervent right of intermediate order between the monks and people, resembling the former in their manner of living, without assuming their name, or contracting their obligations. They were divided into two classes, which derived their different denominations of perfect and imperfect from the different degrees of suffering that they discovered in their manner of living. The perfect lived upon alms, abasing from well of, and had no fixed abodes. The imperfect conformed to the customs of the rest of their fellow-citizens.
in these respects. The name was at first honourable, but by degrees it sunk into reproach, being adopted by many, who, under the mask of religion, concealed the most abominable principles, and committed the most enormous crimes.

The Beghards of Germany, deprived of the protection of the emperor Lewis, suffered extreme misery under Charles IV. who was advanced, by the interest of the pope, to the imperial throne in 1345. Devisors of gratifying the defires of the court of Rome, he supported by his edicts and by his arms the papal inquisitors, and allowed them to apprehend and put to death all those that were deemed enemies; and among others the Beghards were victims to their pernicious

The emperor himself, who resided at Lucca in Italy, not only approved these violent measures, but issued out in 1369 severe edicts, commanding all the German princes to extirpate out of their dominions the Beghards and Beguines, or, as he himself interpreted the name, "the voluntary beggars," as enemies of the church and of the Roman empire, and to affilt the inquisitors in their proceedings against them. By another edict, published not long after, he gave the houses of the Beghards to the tribunal of the inquisition, ordering them to be converted into prisons for heretics; and at the same time ordered all the effects of the Beguines to be publicly sold, and the profits arising from them to be equally divided between the inquisitors, the magistrates, and the poor of those towns and cities where such sale should be made. The Beghards, being reduced to great straits by this and other mandates of the emperor, and by the constitutions of the popes, sought a refuge in those provinces of Swisserland that border upon the Rhine, and also in Holland, Brabant, and Pomerania. But the edicts and mandates of the emperor, together with the papal bulls and inquisitors, followed them wherever they went, and distressed them in their most distant retreats, so that, during the reign of Charles IV., the greatest part of Germany (Swisserland, and those provinces that are contiguous to it, excepted) was thoroughly purged of the Beghards, or rebelious Franciscans, both perfect and imperfect.

The Beghards of Flanders are a denomination by which certain unmarried persons, both bachelors and widowers, are distinguished, who formed themselves into communities of the same kind with those of the female Beguines, referring to themselves the certainty of returning to their former method of life. The first society of those Beghards was established at Antwerp in the year 1228, and continued till, though the brethren of which it is composed have long since departed from their primitive rule of discipline and manners. This first establishment was succeeded by many others in Germany, France, Holland, and Flanders. These fraternities long enjoyed the toleration of the Roman pontiffs; but most of the convents are now either demolished or converted to other uses. See Brethren of the Free Spirit, Pratricelli, and Tertiaries. Molheim's Eccl. Hist. vol. iii. p. 86. 8vo. 1758.

BEGIA, in Geography. See BAYAH.

BEGIES, in Ancient Geography, a town of Illyria, which belonged to the Trallians. Steph. Byz.

BEGKAVE, in Geography, a town of Bohemia, in the circle of Breslaw; 3 miles west of Melnik.

BEGLASEH, a town of Aflatian Turkey, in the province of Caramania, 8 miles north of Kircheh.

BEGLERBEG, a Turkish title for the chief governor of a province, who has under him several boys or fangaces, that is, subgovernors. The word is also written "beylerbey," "beglerbey," "beglerbegli," and "beylerbeg." It is compounded of "begler," lords; the plural of "beg," lord, with the word "beg," subjunctive; importing as much as lord of lords.

The next to the vizier azem, or the first vizier, are the beglerbeks in Turkey, who, according to Rycaut, may be compared to archdukes in some other countries, being the next miniflers below the prime vizier, and having under their jurisdiction many fangaces, or provinces, and their begs, agas, &c. To every beglerbeg the grand signior gives three enzigns or flaves, trimmed with a horse-tail, to distinguish them from the baflaws, who have but two, and from simple begs, or fangace-begs, who have but one. See BaSHAW.

The province or government of a beglerbeg is called beglerbegli, or beglerbeglik. These are of two forts; the first is called "bafhe beglerbeglik," which has a certain rent assigned out of the cities, countries, and feignories allotted to the principality; the second called "flamme beglerbeglik," for maintenance of which is annexed a certain salary or rent, collected by the grand signior's officers with the treasuries of the empire. The beglerbeks of the first fort are in number twenty-two, viz. those of Anatolia, Caramania, Diarbekir, Damascus, Aleppo, Tripoli, Trebizond, Buda, Temeswar, &c. The beglerbeks of the second fort are in number six, viz. those of Cairo, Babylon, &c. Five of the beglerbeks have the titles of vikars, viz. those of Anatolia, Babylon, Cairo, Romania, and Buda. The beglerbeks appear with great state, and a large retinue, especially in the camp, being obliged to bring a folder for every five thousand livers rent which they enjoy.

The beglerbeks of Romania brought ten thousand effectue men into the field.

BEGLERBEG is also a title given to the chief governors of provinces in the Perian empire, having the command over all khans, sultans, &c. in their respective disstricts.

BEGON, Michael, in Biography, was born of a good family at Blois in 1638. After having occupied some law offices in his native province, he was introduced by his kinsman, the marquis de Scigneau, into the marine department, and became succeccively intendant of Havre, of the French colonies in America, and of the galleys. In 1688, he removed to Rochefort, and possessed the intendancy of that port till his death, which happened in 1710. His leisure hours were affiduously devoted to the cultivation of literature, and he was the owner of a valuable library, which was free of public access. In most of his books was written, "Michaelis Begoni et amicorum," 1. e. the property of Begon, and his friends; and when he way of making a librarian against lending his books for fear of losing them, he replied, "I would rather lose them, than seem to disfrust any honest man." His cabinet was richly stored with medals, antiques, prints, and various curiosities, collected from all parts of the world. Having procured engravings of several eminent Frenchmen of the seventeenth century, he collected memoirs of their lives, which furnished materials for Perrault's "Hombres Illustres." Of his botanical researches in the American colonies father Plumier availed himself in his publication, Nouv. Dich. Hist.

BEGONIA


The whole plant in the Begonias is useful; the stem in most of the species is herbaceous, but some are thickened. The leaves are petioled, in the caulecent species alternate. At the base of the pedioles is a pair of filiform appendices. The peduncles in the greater part are dichotomous, and in the caulecent species axillary. They are natives of Asia and America within the tropics. Three species have been found on the islands near the coast of Africa, but none on that continent. To Mr. Dryand botanists are principally indebted for their knowledge of this genus. Linna. Tranf. vol. 1. p. 159.

Propagation and Culture. These plants increase readily by cuttings; and if kept in the bark-dolve prove highly ornamental.
mental, being much esteemed, both for the beauty of the flowers, and the singularity of the leaves. Where a bark-
flow is wanting, they will do very well over the face of the
dry rock. Martin's Miller's Diet.

BEGRAS, in Geography, a town of Ahatic Turkey, in
Syria, at the foot of the Black Mountain, between Alex-
andretta and Antioch.

BEGUE, Achilles William, in Biography, born in
the district of Orleans, was admitted doctor in medicine
by the university of Paris the 30th of September 1760. He
is known principally by his translations into French of Dr.
Whitty's Treatise on Nervous Afections; Dr. Monroe's Ob-
servations on the Diseases of the Army; Baron Stork's Ef-
fays on the virtues of hemlock, the thorn-apple, henbane, and
other poisonous vegetables; and Baron Van Swieten's account
of the use of the corrosive sublimate in curing the venereal dif-
cese. His original compositions are "Le Confevateur de la
Sante," and "Extreme fatisfes," both published in 12mo. in
1763; the idea of which seems to have been borrowed from
Tiffon's "Avis au Peuple fur la Sante," of which he published

BEGUINS, in Ecclefial History, were, as well as the
Beghards, a kind of half-monks, called Tertiaries, who at-
tached themselves to the genuine followers of St. Francis.
In Italy they were denominated "Bocofchi," and "Bocafo-
ti;" in France, "Beguins;" and in Germany, "Beghards," or
"Beguins," which last was the denomination by which they
were commonly known in almost all places. If we ex-
ccept their forlorn state, and certain obervations and maxims
which they followed in consequence of the injuftions of the
famous faint now mentioned, they lived after the manner of
other men, and were therefore confidered in no other light
than as seculars and laymen. See Beghards, and Ter-
taries.

We mutt not confound, says Mofheim, the Beguins and
Beguines, who derived their origin from an autheutic branch
of the Francifcan order, with the German and Belge
Beguines, who crept out of their obscurity in the 13th cen-
tury, and multiplied prodigiously in a very fhort space of
time. Their origin was of an earlier date than this century; but
they now acquired a name, and made a noise in the world.
It appears from authentic and unexceptionable records, that,
no early as the 11th and 12th centuries, there had been fe-
fveral Societies of Beguines eftablfhed in Holland and Pflan-
ders. However, the only convent of Beguines that existed
before the 15th century, was that of Vilvorden, in Brabant,
where they were settled, as appears by public acts, in the
years 1065, 1129, and 1151. Their primitive eftablfhment
was undoubtedly the refult of virtuous difpofitions and up-
right intentions. A certain number of pious women, both
virgins and widows, in order to maintain their integrity, and
preferve their principles from the contagion of a vicious and
corrupt age, formed themselves into Societies, each of which
had a fixed place of refidence, and was under the inspection
and government of a female head. Here they divided their
time between exercises of devotion, and works of benevolent
industry, referring to themselves the liberty of entering into
the fale of matrimony, as also of quitting the convent,
whenever they thought proper. And as all those among
the female sex, who make extraordinary profefions of piety
and devotion, were disdained by the title of Beguines, i.e.
persons who were uncommonly "affiduous in prayer," as
the name imports (see Beghards); that title was given
to the women now mentioned. All the Beghards and Be-
guines that yet remain in Flanders and Holland, where their
convents have almost entirely changed their primitive form,
affirm unanimously, that both their name and institution de-
ribe their origin from St. Begge, dukes of Brabant,
and daughter of Pepin, mayor of the palace to the king of
Austrasia, who lived in the seventh century. This lady,
therefore, they consider as their patroness, and honour her
as a kind of tutelary divinity with the deepest sentiments of
veneration and repect. Those, on the other hand, who are
no well withers to the caufe of the Beguines, deduce their
origin from Lambert de Begue, a priest and native of Lige,
who lived in the twelfth century, and was much esteemed
on account of his eminent piety.

The first Society of this kind, of which record remains,
was formed at Nivelle in Brabant, in the year 1225; or,
according to other historians, in 1207; and was followed by
so many inf titutions of a like nature in France, Germany,
Holland, and Flanders, that, towards the middle of the
thirteenth century, there were scarcely a city of any note that
had not its "beguines," or vineyard, as it was sometimes
called in conformity to the style of the "Song of Songs."
All these female Societies were not governed by the fame
laws; but in the greatest part of them, the hours that were
not devoted to prayer, meditation, or other religious exercices,
were employed in weaving, embroidering, and other manual
labours of various kinds. The poor, sick, and disabled Be-
guines were supported by the pious liberality of such opulent
persons as were friends to the order. In the 14th century
these Societies were more numerous in various parts of Ger-
mcy; but, adopting some of the extravagant opinions of the
"Mythic Brethren and Sifters of the Free Spirit," they
shared with them in the perfecution which they suffered.
The "Clementina," or constitution of the council of Vienne,
A.D. 1311, against the Beguines, gave rise to a perfecution
of these perfons, which lasted till the reformation by Luther,
and ruined the caufe of the Beguines and Beghards in many
places. From this Clementina, many took occasion to mel-
loft the Beguines in their houfes, to feize and deftroy their
goods, to offer them many other infults, and to involve allo
the Beghards in the like perfecution. In the year 1324,
however, they obtained some relief by a special constitution
of the Roman pontiff, John XXII, in which he explained the
Clementina, and ordered that the goods, chattels, habi-
tations, and Societies of the innocent Beguines should be
preferred from every kind of violence and infult; and this
example of clemency and moderation was afterwards followed
by other popes. The Beguines, on the other hand, in hopes of
diappofting the malice of their enemies, and avoiding their
fifth, embraced, in many places, the third rule of St. 
Francis, and of the Angulines. But this measure was un-
availing; for from this time they were approv'd in several
provinces by the magistrates, the clergy, and the monks,
who call a greedy eye on their treasures, and were extremely
eager to divide the spoil. Mofheim's Ecc. Hist. vol. ii.
P. 232, 377, &c.

Cemrnunities of Beguines, or Beguinage, still fulfil
in Holland, Flanders, and Germany. In Bruffels, there is
a fingular part of it, which is in a little town, inclosed
by a wall and ditch, and divided into streets. It is called
the Beguinage. The number of Beguines is near a thou-
and, governed by matrons, and under the spiritual direction
of the bishop of Antwerp. There are also Beguinages at
Amsterdam, Antwerp, and Malines.

BEGZAM, in Geography, a town of Africa, in the
country of Agades, south of Agad or Agades, the capital
of the country, and at a greater distance south of Afulos, and
end of the desert of Jaffar. N. lat. 19° 28'. E. long. 12° 50'.

BEHAIRAT-EL MARDI, or Lake of the Meadow,
a morass of Syria, about 3 leagues from Damascus to the
south-east, into which flow the rivulets that fertilize the
gardens in the neighbourhood of the city. See DAMASCUS.

BEHAM, Hans, or Joan Sebald, in Biography, an
eminent
of the duchy of Burgundy and Flanders; and having informed her of his designs, he procured a vessel, in which he discovered the island of Fayal in 1460. Here he established a colony of Flemings, whose descendants are said fill to exist in the Azores, which for some time were called the "Flemish islands." For the proof of this fact M. Otto refers to the records of Nuremberg, and to the testimony of Wagenfels, one of the most learned men of the last century, in his "Universal History and Geography." Having obtained a grant of Fayal from the regent Isabella, and after having resided there 20 years, Behem applied, in 1484, eight years before the expedition of Columbus, to John II. king of Portugal, for the means of undertaking a great expedition towards the south-west. In the prosecution of this undertaking he discovered that part of America, which is now called Brazil, and failed to the Strait of Magellan, or to the country of some savage tribes, whom he called Paraguayans, because the extremities of their bodies were covered with a skin more like a bear's paws than human hands and feet. One of the records, preferred in the archives of Nuremberg, and containing this fact, affirms, that "Martin Behem, traversing the Atlantic ocean for several years, examined the American islands, and discovered the Strait, which bears the name of Magellan, before either Christopher Columbus or Magellan failed those fears; and even mathematically delineated, on a geographical chart, for the king of Liutania, the situation of the coast, around every part of that famous and renowned strait." This allusion is supported by Behem's own letters, written in German, and preferred in the same archives; which letters are dated in 1486. The discovery of Behem is also noticed by contemporary writers. In the chronicle of Hartman Schedel, or Hermann Schedel, entitled "Chronicon Mundi," and of which a German translation was published at Nuremberg in 1493, we have the following passage to this purpose: "In the year 1485, John II., king of Portugal, a man of a magnanimous spirit, furnished some galleys with provisions, and sent them to the southward by the Straits of Gibraltar. He gave the command of his squadron to James Canus, a Portuguese, and Martin Behem, a German of Nuremberg; in Upper Germany, descended of the family of Bonua, a man very well acquainted with the situation of the globe, blessed with a constitution able to bear the fatigues of the sea, and who, by actual experiments and long sailing, had made himself perfectly master with regard to the longitudes and latitudes of Portugal, in the world. These two, by the bounty of Heaven, coasting along the southern ocean, and having crossed the equator, got into the other hemisphere, where, facing to the eastward, their shadows projected to the south and right hand. Thus, by their industry, they may be said to have opened to us another world hitherto unknown, and for many years attempted by none but the Genoese, and by them in vain. Having pursued this cruise in the space of 26 months, they returned to Portugal, with the lufs of many of their seamen, by the violence of the climate." This passage is cited by the publishers of the works of Ad association, afterwards pope Pius II. Two years before the expedition of Columbus, Petrus Matur, a writer on the cannon law, remarks, that the first Christian voyages to the newly discovered islands became frequent, under the reign of Henry, son of John king of Liutania. After his death, Alphonfus V. protected the design; and John, who succeeded him, followed the plan of Alphonfus, by the assistance of Martin Behem, a very experienced navigator; so that, in a short time, the name of Liutania became famous over the whole world." Cellinis also says expressly: "Behem did not think it enough to survey the straits of Fayal, which he first discovered, or the other adjacent islands which

eminent engraver, flourished about the year 1540. Like Henry Aldegrever and Albert Durer, whose works were the sources from which he derived his greatest improvement, he engraved in wood, and also on copper, and etched some few plates. He was also a painter of reputation, and celebrated by the poets of that age under the name of Bohemus. He was a man of good genius, and distinguished by fertility of invention. But the Gothic taste which prevailed in Germany in his time, is too apparent in all his works. His brother Bartolomew Behem flourished as an engraver about the same time. He is said to have studied under Marc Antonio Raimondi, whose manner he imitated. His chief residence was at Rome, where he died. Strutt.

BEHAMBERG, in Geography, a town of Germany, in the archduchy of Austria, 3 miles east of Steyr.

BEHAM, in Geography, a town of Germany, in the archduchy of Austria, 6 miles south-east of St. Polten.

BEHAVIOUR, Good, in Law. See Corp. Almogia.

BEHBEHAN, a town of Persia, in the province of Fars.

BEHDUROO, a country of Hindostan, in the northern parts of Lahore, near the Imaus mountains, where one branch of the river Rawee springs.

BEHEADING, a capital punishment, wherein the head is severed from the body by the stroke of an ax, sword, or other cutting instrument.

Beheading was a military punishment among the Romans, known by the name of decollatio. Among them the head was laid on a cippus, or block, placed in a pit dug for the purpose; in the army, without the valum; in the city, without the walls, at a place near the porta decumania. Preparatory to the stroke, the criminal was tied to a stake, and whipped with rods. In the early ages the blow was given with an ax; but in after-times with a sword, which was thought the more reputable manner of dying. The execution was but clumsily performed in the first times; but afterwards they grew more expert, and took the head off clean with one circular stroke.

In England and France, beheading is the punishment of robbers; being reputed not to derogate from nobility, as hanging does.

Beheading is part of the punishment of high treason, affecting the king's person or government. The king may, and often does, discharge all the punishment, except beheading, especially when any of noble blood are attainted. For, beheading being part of the judgment, that may be executed, though all the rest be omitted by the king's command.

In Scotland they do not behead with an ax, as in England; nor with a sword, as in Holland and formerly in France where they now use the guillotine; but with an edged instrument called the maiden.

BEHEM, BEHEEM, BEHEN, BOHEM, MARTIN, in Biography, it is said to be the name with Martin Behemana, to whom Garziafo de la Vega ascribes the first discovery of America, who was a famous geographer and navigator of the 15th century.

The Christian name, says F. Otto, (ubi infra) is the same with that of Garziafo, and the syllable "in" he conceives, were added to his name in consequence of his receiving the honour of knighthood from John II., king of Portugal.

Behem was born of a noble family, of which some branches still remain at Nuremberg, an imperial city in the circle of Franconia. Addicted from his infancy to the study of geography, astronomy, and navigation, and having enjoyed the advantage of Regemontanus's instruction, he entertained the thought, at a mature age, of the possibility of the existence of the antipodes, and of a western continent. Under the influence of this imagination, he paid a visit, in 1439, to Isabella, daughter of John I., king of Portugal, and regent
which the Lusitanians call Azores, and we, after the example of Behem's companions, call Flemish islands, but advanced still farther and farther south, until he arrived at the remotest strait, beyond which Ferdinand Magellan, following his track, afterwards sailed, and called it after his own name."

Magellan, it is said, from a chart of the coast of America, drawn by Behem, and preferred in the archives of Nuremberg, and hence conceived the project of following the flaps of this great navigator. Riccioli, in his Gea. Reform. l. iii. p. 90, says, "Christopher Columbus never thought of an expedition to the West Indies, until some time before, while in the island of Madeira, where, amusing himself in forming and delineating geographical charts, he obtained information from Martin Behem, or, as the Spaniards say, from Alphonfus Sanchez de Huvela, a pilot, who, by mere chance, had fallen in with the island afterwards called Dominica."

In another place he says, "Let Behem and Columbus have each their praise; they were both excellent navigators; but Columbus would never have thought of his expedition to America, had not Behem gone there before him. His name is not so much celebrated as that of Columbus, Americus, or Magellan, although he is superior to them all."

Martin Behem, in consideration of his great services to the crown of Portugal, was knighted by king John in 1485, in the presence of his whole court. In 1492, the chevalier Behem, crowned with honours and riches, undertook a journey to Nuremberg, to visit his native country and his family; and there he made a terrestrial globe of curious contruction, which is still preserved in the library of that city. On this globe is marked the track of his discoveries, under the appellation of the western lands; and from their situation it cannot be doubted, that they are the present coasts of Brazil, and the environs of the straits of Magellan. This globe was made in the same year when Columbus set out on his expedition; and hence it is inferred, that Behem could not have profited by the observations of this navigator. After having performed several other interesting voyages, the chevalier Behem died at Lisbon in July 1506, universally regretted, and leaving behind him no other work besides the globe already mentioned, which was constructed from the writings of Ptolomy, Ptolemy, Strabo, and especially from the account of Mark Paul the Venetian, a celebrated traveller of the 13th century, and of John Mandeville, an Englishman, who, about the middle of the 14th century, published an account of a journey of 33 years in Africa and Asia. He has also added the improved discoveries made by himself on the coast of Africa and America.

Dr. Robertson treats the history of Behem as a fiction of some German authors, who were inclined to attribute to one of their countrymen a discovery which has produced to great a revolution in the commerce of Europe. Nevertheless, he acknowledges with Herrera, that Behem had settled in the island of Fayal; that he was the intimate friend of Columbus; and that Magellan had a globe made by Behem, by the help of which he undertook his voyage to the south sea. He also relates, that in 1492 this geographer visited his family at Nuremberg, and left there a map drawn by himself, a copy of which was procured for him by Dr. Reinhold Fother, and which, in his opinion, partakes of the imperfection of the cosmographical knowledge of the 15th century; as he found it, under the name of the island of St. Brandon, land which appears to be the present coast of Guinea, and which lies in the same latitude with the cape Verd islands; and he conceives that this is an imaginary island, which has been admitted into some ancient maps, on no better authority than the legend of the Irish St. Brandon or Brendan, whose story is so childishly fabulous as to be unworthy of any notice. He adds, that hardly any one place is laid down in its true situation. M. Otto thinks that Dr. Robertson furnishes, in his own history, means of refuting his objections against the truth of Behem's history. This learned historian allows, that Behem was very intimate with Columbus, that he was the greatest geographer of his time, and that he had been the disciple of the celebrated John Muller or Regiomontanus; that he had discovered, in 1493, the kingdom of Congo on the coast of Africa; that he constructed a globe, used by Magellan; that he drew a map at Nuremberg, containing the particulars of his discoveries; and that he placed in this chart, which is found to be in the latitude of Guinea. Whilft Dr. Robertson affirms, without any proof, that this land was but a fabulous island, we may suppose, says M. Otto, upon the same foundation, that the chevalier Behem, engaged in an expedition to the kingdom of Congo, was driven by the winds to Fernambuco, and from thence by the currents, very common in those latitudes, towards the coast of Guinea; and that he took for an island the first land which he discovered. The course which Christopher Columbus afterwards steered, makes this supposition still more probable; for if he knew only of the coast of Brazil, which they believe to have been discovered by Behem, he would have laid his course rather to the south-west. The expedition took place in 1493; it is then possible that, at his returning, Behem proposed a voyage to the coasts of Brazil and Patagonia, and that he requested the affiance of his sovereign, which has been already mentioned. "It is certain," says M. Otto, "that we cannot have too much deference for the opinion of so eminent a writer as Robertson, but this learned man not having it in his power to confute the German pieces in the original, which we have quoted, we may be allowed to form a different opinion, without being too presumptuous."

BEHLMEN, or BÖHM, JACOB, in Biography, commonly called by his admirers, the "German Theosophist," was born of poor parents at a village near Gorlitz, in Upper Lusatia, in 1573. Having been taught to read and write, at the age of 16, he was apprenticed to a flax-maker, or taylor, and in 1594 became a tailor and was married. Although he never entirely forsook his occupation, his eccentric genius soon carried him "ultra crepidam," beyond his limit. Engaging in those theological controversies, which were spreading in his time through Germany, among the lower classes of the people, he was much perplexed concerning many articles of faith, and prayed earnestly for divine illumination. In this state of mind he fell into a trance or ecstasy in 1600, which lasted for seven days, and afforded him an intuitive vision of God. Soon afterwards he had a second ecstasy, in which he found himself surrounded in a sudden with celestial irradiations, his spirit being carried to the immaterial world of nature, and enabled to penetrate through the external forms, lineaments and colours of bodies, into the recesses of their essences. In a third vision of the same kind, other more sublime mysteries were revealed to him, concerning the origin of nature, and the formation of all things, and even concerning divine principles and intelligent natures. These wonderful communications he committed to writing in 1612; and published a book entitled "A Manual of the Principles and Style of which are so mysterious and obscure, that it is not easy to understand or explain them. Indeed the author himself declares that the mysteries of this book are incomprehensible to flesh and blood, and that though the words be read, their meaning will lie concealed, till the reader has by prayer obtained illumination from that heavenly spirit, which is in God, and in all nature, and from which all things proceed. Gregorius Richter, a clergyman of Gorlitz, having seen this work, reproved the author from the pulpit, and procured an order from the senate of the city for suppressing it; and Behmen was required to discontinue his attempts for enlightening the world by his writings. Behmen acquiesced, and refrained from writing for 7 years. A copy of the work, however, found its way to the press at Amsterdarn, in 1619; and in the same year he wrote another book on the three principles, to which in the course of a few years he added several others. In 1624 he travelled to Dresden, where he was examined by a body of divines and dismissed without censure. He died in the same year, after having received the sacrament from the hands of Elias Dietrich, and was honourably interred at Gorlitz. His other works are "Of the Three-fold Life of Man?" "Answer to the Forty Questions of the Soul?" "Of the Incarnation of Christ, his Sufferings, Death, and Resurrection?" "A Book on the Six Points?" "On Celestial and Terrestrial Mysteries?" "De Scriptura Rerum?" "Of the Four Complexions?" "On True Repentance?" "On True Reconciliation?" "On the Second Birth?" "Mythilrum Magnum?" "On the Firik Book of Moses?" "On Spiritual Life," &c. These treatises appeared separately, and were afterwards collected and printed together. The best edition is said to be that in 1720, published in German, at Amsterdam, in 1684. An English edition of his works was given by Mr. William Law, in 1712, 2 vols. 4to.

In Jacob Behmen, a warm imagination, united with a gloomy temper, produced that kind of enthusiasm, which in its paroxysms disturbs the natural faculties of perception and understanding, and produces a preternatural agitation of the nervous system, during which the mind is filled with wild and wonderful conceptions, which pass for visions and revelations. Every page of his works, and even the hieroglyphic figures prefixed to his works, manifest a disordered imagination, and it is vain in attempt to derive his "Theban," from any other source; unless we incline to admit his own account, in which he boasts that he was neither indebted to human learning, nor was to be ranked among ordinary philosophers. He says that he wrote "not from an external view of nature, but from the dictates of the spirit: and that what he delivered concerning the nature of things, and concerning the works and operations of God, had been laid open before his mind by God himself." The conceptions of this enthusiast, sufficiently obscure in themselves, are often rendered more obscure by being clothed under allegorical symbols, derived from the chemical art. As he frequently uses the same terms with Paracelsus, he was probably conversant with his writings. He also appears to have acquired some knowledge of the doctrine of Robert Fludd, a native of England, and the Rosicrucians, which was propagated in Germany with great ostentation during the 17th century. However, he seems, upon the whole, to have followed no other guides than his own inventive genius and enthusiastic imagination; and every attempt which has been made by his followers to explain his system has been only raising a fresh ignis fatuus, to lead the bewildered traveller farther astray. Among other tenets, equally inexplicable, this mystic makes God the essence of essences, and he supposes a long series of spiritual natures, and even matter itself to have flowed from the fountain of the divine nature. Upon these subjects his language resembles that of the Jewish cabala. The whole Divine Trinity, he says, spreading forth bodily forms, produces an image of itself, "as a God in miniature." If any one name the heavens, the earth, the stars, the elements, and whatever is beneath or above the heavens, he herein names the whole deity, who, by a power proceeding from himself, thus makes his own essence corporeal. There is a great deal of this kind in his writings, in which he represents himself, as a spirit, among the stars, where the devil holds his principality; all arts and sciences flow from the fudereal spirit of this world; the seven liberal arts proceed from seven spirits of nature; and all human things are composed of the four first properties, bitter, sour, salt, and sweet. The divine grace, says this chimerical writer, operates by the same rules, and follows the same methods that the divine Providence observes in the natural world; and the minds of men are purged from their vices and corruptions in the same way that metals are purged from their dross; and this maxim was the principle of his fire-theology. But it is needless to give any farther account of a system which exhibits a mollock mixture of chemical terms, crude visions, and mystical jargon. The elements of Behmen's theology may be collected from his "Aurora," and his treatise "on three principles."

Some have bellowed high praisies on this enthusiast, on account of the wisdom which they pretend is contained in his writings, and also of his piety, integrity, and sincere love of truth and virtue. Others have accused him of the most dangerous errors, and have written volumes in opposition to his doctrines. Amongst the most eminent of his followers and admirers, we may reckon John Lewis, Gifftshiel, John Augustus, Werdenhausen, Abraham Franckenberg, who wrote his life, Theodore Tichtech, a Silesian nobleman, Paul Felghenau, Quirinus Kuhlman, who was burnt at Moscow in 1594, John Jacob Zimmermann, and our visionary countryman William Law, author of "Christian Perfection." Among Behmen's numerous followers, no one pretended himself more conspicuous than John Porte, a physician and naturalist, and member of the "Philadelphia Society," who pretended to divine revelation, and declared that he was thus convinced of the truth of Behmen's doctrines. He published a book entitled "Divine and True Metaphysics," with other similar works in favour of Behmen's opinions, which being
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being soon spread throughout Germany became, together
with his other writings, the standard books of all enthusiasts.
To the class of his adventures we may refer Gilbert Tichet-
ich's, who published an admirable account of his works in
1643, which was answered by Tichetich, Gerard Antag-
nolus, who refuted Tichetich, and who endeavoured to
prove that Behmen entertained the same opinions as the
Manichaeans and Gnostics; Tobias Wagner, and Dr. Henry
More, who wrote a tract against Behmenius, entitled
"Contra Philosophos," printed in his works, p. 520.
Some persons have attempted to prove from Beh-
men's writings, that he did not acknowledge a deity; and
particularly Von Muller, in a work entitled "The Fanatic
Atheist." Brucker's Hist. Phil. by Enfield, vol. ii. p. 494,
BEHMENISTS, or Behmenists, in Eccl. History, the
denomination of a class of mystic philosophers,
who were the followers of Jacob Behmen, commonly called
the Teutonic philosopher. See the preceding article.
BEHN, APHRA, in Biography, a writer of novels and
plays, was defended of a good family of the name of John-
son in Canterbury, and born in the reign of King Charles I.
Her father died at sea in a voyage for Surinam, of which she
was appointed lieutenant-governor by the interest of Lord
Willoughby, to whom he was related; but his daughter,
with the rest of the family, arrived thither. Here she became
acquainted with the lady and person of the American prince
Oromoko, whose adventures she described in a novel under
this title. After her return to England she married Mr.
Behn, a merchant in London, of Dutch extraction.
During the Dutch war in the reign of Charles II. she was em-
ployed for gaining intelligence on the continent, and with
this view she resided at Antwerp. By her intrigues, it is
said, she discovered the design, formed by the Dutch, of
falling up the river Thames, and burning the English ships
in their harbours; but her intelligence was sighted by the
English court, to which it was imparted. On her return to
England the narrowly escaped shipwreck. Her future life
was devoted to pleasure and poetry; and by writing the
poetry, gained a sufficiency. With a good perform, and distin-
guished talents for conversation, she formed an intimate acquaintance
with several poets and writers of her time, as well as men of
pleasure. Her compositions, in verse and prose, were nu-
merous; and she published three volumes of miscellaneous
poems, seventeen plays, and a collection of histories and
novels, besides some translations and letters. She borrowed
much from other writers, and the merit, that was properly
her own, confided in a fluent easy style, occasionally glow-
ing with the ardour of love, when this subject was the topic,
and in some sprightly thoughts and facility of invention.
Many of her plays succeeded on the stage, at a period
when gross indecency of plot and language was no imple-
diment to their reception. Her poetical appellation was
Afrea; and her dramatic compositions are characterized by
Mr. Pope in the following lines:

"The figle how looely does Afrea tread,
Who fairly puts all others to bed."

None of her dramatic pieces are now acted; her poetry
has been long forgotten; but her novels, which were once
popular, are now occasionally read. Her death, which was
hastened by an injudicious physician, happened in 1689,
when she was between the age of 40 and 50; and she was
Gen. Dict.

BEHINESE, or BAHNASA, in Geography, a town of
Egypt, 10 miles north of Abu Girgé.

BEHRENS, CONRAD, BERTHOLD, in Biography, was
born at Hildersheim, in Lower Saxony, August 26th 1662.
After passing through the usual course of studies in the clas-
ses and philosophy, in his own country, and residing for
some time at Strasburg and Leyden, he took the degree of
Doctor in Medicine at Helmstadt, was made physician to the
army of the duke of Brunswick, and in 1712 to the court
of Brunswick Luneburg, and member of the Academy
Nature Curiosorum, to the Memoirs of which he was a con-
considerable contributor. His principal works are, "De Con-
stitutione Animae Medicorum," Helm. 1681, 8vo. "Medicus
Legalis," 1695, 8vo. published in German. In this he treats
of the duties and office of physicians, surgeons, apothecaries,
and midwives, of alchemy, of magnetism applied to medicine,
and of the causes of sudden death, on which he has some
judicious observations. "Scheda Dietetica, five de recta ad
fantastum vivendi ratione tractatus," Franc. 1710, 4to. He
died October 4th 1738. His son Rodolph August Behrens,
who succeeded to his honours and practice, published "De
Felicitate Medicorum Aucta in terris Brunsviciensibus," 1747,
4to. occasioned by some additional privileges accorded to
the physicians there. In this work he takes occasion to
comment on, and refute the opinion of Middleton, as to the
fervile condition of physicians among the Romans.

BEHUT, called also BETUM, HYLUM, OR CHILUM,
in Geography, a river of Hindostan, is the westermost of the
two rivers that water the Panjab; and its general course is
calld, and nearly parallel to that of the Attock, but it is of a
less bulk. This is the famous Hydaspes of Alexander, on
the banks of which he was opposed by Porus, a powerful
monarch of the country, at the head of a numerous army.
By the Ayin Acharne, it is said to be anciently called
Buda. The Behut rises from the spring of Wair, or Waer
Nag, in the south-east part of Cashmere, and after a north-
west course through that valley, enters the mountains at
Barchmool. During this short course it receives abundance
of rivulets and streams from some large lakes, and becomes
navigable at a few miles below its remotest spring. After
entering the mountains it pursues the direction of the Pan-
jab by a very crooked course, being pent up in a deep wind-
ing valley, whilst escaping from the wide base of the Cash-
merian mountains, and rushing with such rapidity and
violence that even the stoutest elephant cannot cross its
footing in it. It emerges from the mountains near the tributary
of Puck-bull, and is afterwards joined by two small but celebrated
rivers named Kifelenom and Nainfook. After it travers-
es the territory of the Ghickers, still holding its course
through a hilly country, until it crosses the upper or great
road leading from Lahore to Attock, where the hilly tract
is confused to the westerly bank. Here Bood, not long since,
a city of the name of Hylum, which communicated its name
to the river, during the remaining part of its course; and
hence it is as commonly named Hylum as Behut. From
Hylum it pursues its course along the eastern borders of the
Joud mountains, and unites with the Chunnaub at about 50
geographical miles above Moutian; losing its name in that
of the Chunnaub, as heretofore it lost its name of Hydaspes in
that of Aceines, the ancient name of the Chunnaub. The
interval between the Behut and the Indus, in the widest part,
is about 94 geographical miles. Pliny allows only 120 Ro-
man miles between the Indus and the Hydaspes. Renolleau's

BEIA, PAX JULLA, an ancient city of Portugal, in
the province of Alentejo, near a lake of the same name. It
is mentioned by Pliny, Ptolemy, and Antoninus. Several
Roman coins and inscriptions have been found near this
place. Its situation is on a gentle hill in a fertile country rich
in corn, and it is surrounded with walls and gates; and it is the
fee
BEI

See of a Babylon, a corregidor, and a veteran. It was taken from the Moors in 1662. N. lat. 57° 52'. W. long. 21°.

BEJA, a large extent of country in Abyssinia, lying between the northern tropic and the mountainous region of the Red Sea, running from Mahali along the coast of the Red Sea to Sukakim; then turning westward, and continuing in that direction, with the Nile on the south, the tropic on the north, to the deserts of Solima, and the confines of Lybia on the west. See ABBASIA.

BEI, of Turia. See BAHIA.

BEJAD, a village of Egypt, opposite to Berbera, partly inhabited by Copts.

BEJAPOUR, or VISAPOUR, a considerable town in Hindustan, and once the capital of a large kingdom of the same name. It is now in the hands of the Poonah Maharattas; distant 234 miles from Bombay, by Calcutta by the Cawra, 1183, and by Aurungabad 1216, from Delhi 916, from Hyderabad 296, from Madras 534, from Poonah 136, from Serampatam 425, from Bﲒres 876, and from Agra 825 miles. N. lat. 17° 28'. E. long. 75° 27'.

BEJAR, a small town of Spain, in the province of Estremadura, situated in the midst of a pleasant valley between high mountains, whose tops are continually covered with snow. It is famous for its baths, and in its vicinity is a lake, which is said to have bad weather by an unusual agitation. It was raised into a duchy in 1448.

PIRAS de MALGA, or Berior, a town of Spain, in Andalucia, near the frets of Gibraltar, 8 leagues south of Cadiz.


BEJAS, 1. B. r. l., Mutis Amer. i. 174. "Leaves with olives, flowers in raceme." A shrub twelve feet high, with radiating spreading branches. A native of Mexico. Found in New Granada by Mutis. 2. B. p., Mutis Amer. i. 174. "Leaves ovate, flowers leafy." A tree with opposite branches, and an irregular, tender, subpubescent bark; corolla purple, very revoluted or furred. Found in New Granada by Mutis. These have a peculiar pungent savour, and are called to the rhodi-odendron. The name was erroneously made "Belara" by Linnæus.

BEBENSA, in Abyssinia, a name given by some to a mountain near the principal Inafla in the same constellation.

The population is more particularly given to the florals of the first order, otherwise called the heart, cora, of the felid constellation; though some would distinguish between cora and bebenza flora, restraining the former to florals only, of the first magnitude, and extending the latter to several grades of beauty, or even third.

Hermen, a poetical express De Stela, Barberini, published by Marotta, in his Speculum Astronomiæ, and also in his opera omnia, written upon Jo. de Sacrobosco's book De Sphera.

BEJINGEN, in Geography, a town of Germany, in the circle of Upper Saxony, and county of Trierhausen, at a distance 28 miles S. W. of Wiche. N. lat. 51° 42'. E. long. 11° 52'.

BELIA, a town of Italy, in Piedmont. N. lat. 45° 3'. E. long. 7° 48'.

BELIAN, a town of Syria, S. E. of Damascus, and SE. of Anti-Atlas. N. lat. 36° 26'. E. long. 35° 11'.

BELINGENIA, a town of Germany in the circle of Franconia, and between of Anhalta and the county of the Arrick. The country is of great extent, and the soil is very rich, and well watered. The building is by the richest hands of Bottin-Borre, and well situated in the midst of the natural Rhein circle. N. lat. 52° 31'. E. long. 8° 11'.—Als, a small town of Germany, in the duchy of Wurttemberg. In 1673, it was burned by the French. Its district comprehends several villages.

BELIUL, a town of Alfious, situated on the Red Sea north of Alchi. N. lat. 14° 3'. E. long. 41° 58'.

BEINA, a river of Norway, in the government of Chriftiana, which runs into the lake of Sperdillon; and serves for exporting timber.

BEINACE, a town of France, in the department of Corrèze, and chief place of a canton, in the district of Baye, 8 miles south of Tulle.

BEINASCHI, Giovanni Battista, in Biography, an historical painter, was born in Piedmont in 1654, and studied at Rome under Pietro del Po, and later lay, was afterwards a pupil of Larinane. He died in 1688. Beinaschi was an admirable designer of a lively invention, and not only expeditious, but correct. As an acknowledgment of his merit, he received the honour of knighthood.

BEINASC, in Geography, a town of Piedmont, 4 miles S. W. of Turin.

BEINGHUR, a town of Hindostan, in the district of Beresse, part of the territory of the Maharratas. N. lat. 15° 15'. E. long. 75° 11'.

BEINE, a town of France, in the department of the Marne, and chief place of a canton, in the district of Reims; the place contains 67,5j; and the canton 84,754 inhabitants; the territory includes 5527 square kilometres and 19 communes.

BEING, in Mythology, includes not only whatsoever actually is, but whatsoever can be. It is the first and most obvious, the most simple and natural conception that we can frame of anything which we see, feel, hear, or know. It is in some sense comprehended in all our other conceptions of things, and is therefore the most general or universal of all our ideas. By the affections of being, we mean all powers, properties, accidents, relations, passions, dispositions, internal qualities, external adjuncts, circumstances, conditions, or circumstances whatsoever; or, in a word, and all those modes which belong to things, either as they are in themselves, or as they stand in relation to other things, or as they are represented or modified by our ideas and conceptions. The various kinds of beings have been referred by writers on this subject into three distinct classes; and they have been considered as either substantives or modes, finite or infinite, and natural, artificial, or moral. For the two former classes, see SUBSTANCE, MODE, FUTURE, and INFINITE. Natural beings are all those things that have a real and proper existence in the universe, and are considered as formed and ordained by God the creator; such are bodies, plants, animals, trees, fruit, fruit-trees, vegetables, fire, flame, light, and air. Artificial beings are made by the contrivance or operation of men, whether they are of a more corporeal nature, such as houses, windows, pictures, statues, arms, armor, utensils, writing, music, and the various utensils of life; or whether they relate more to intellectual matters, as words, sciences,
notices, arguments, propositions, verse, prose, &c. Moral beings are those which belong to the conduct and government of intelligent creatures, or creatures endowed with understanding and volition, considered as lying under obligations to particular actions or abstinence; but these are considered as moral only, if such are law, duty, virtue, vice, sin, righteousness, judgment, condemnation, reward, punishment. These distinctions might, perhaps, be more properly referred to the separate classes of different ideas than different beings. Being is the subject of Ontology. See Ontology. See also Essence and Existence.

BEINHEIM, in Geography, a town of Germany, in the circle of Swabia, seated on the left side of the Rhein, and belonging to the march of Baden; 6 leagues N. E. of Stralsburg.

BEINIGKEMEN, a town of Lithuania, 12 miles north of Pillallen.

BEIRA, a large and fertile province of Portugal, bounded on the north by the province of Entre Doura a Minho, from which it is separated by the river Douro or Douro, and by Traulos Monte; on the west by the ocean and part of Estremadura; on the south by another part of that province and by the Tagus; and on the east by the Spanish Estremadura, and the Kingdom of Leon. It is divided into Upper and Lower Beira; the former being the northern part, and lying on the sea-cost; the latter lying towards Spain and Estremadura. Its extent from coast to coast is generally computed at between 30 and 36 Portuguese miles; and from north to south about as many. It was erected into a principality by John V. in honour of his grandson, the elder son of the prince of Bragel. It produces wheat, rye, and millet; and, in several parts, excellent wine and oil in such abundance, that considerable quantities of each are exported. Beira comprehends eight jurisdictions, and its principal cities and towns are Coimbra, Leiria, Guarda, Viseu, Miranda do Corvo, Tentugal, Aveiro, Ovar, Pampilho, Almeida, Francofo, Meda, Caltella Branco, Penamacor, and Covilha; the four first are episcopal cities. The militia of this province consists of eight regiments, each regiment including about 1000 men.

BEIRAGUR, a town of Hindoostan, on the west of Band, and near the Mahamadry river, noted in the Aya Acehain, as having a diamond mine in its neighbourhood.

BEIRAM. See Bairam.

BEIRUT. See Bactor and Berytus.

BEISCHOT, Joachim Francis, in Biography, a painter of landscapes and battles, was born at Rauenburg, in Swabia, in 1665; and having received the first rudiments of the art of painting from his father, who employed himself in this way for his amusement, he became a good artist by the force of his own genius and by assiduous practice. He was engaged at the court of Munich, and painted the battles fought in Hungary by the elector Maximilian Emanuel. During the abdication of the emperor on some of his expeditions, Beisch visited Italy, and there, with a view to his further improvement, Studied and copied the famous models to which he had access. Before his journey to Italy, his manner was firm; but too dark; his second had more clearness and more truth; and his last was more clear but more weak. The scenes of his landscapes are agreeably picturesque; his touch is light, tender, and full of spirit; and his style of composition frequently resembled that of Gaspar Poulin, or Salvador Rosa. He died in 1748. Pilkington.

BESHEWA, or Besharm, in Geography, a town of Asiatic Turkey, in Caramania, felled near a lake. N. lat. 37° 45'. E. long. 32° 11'.

BEISSKER, in Ichthyology. See Beissker, of Deizker, and Combes Fossils. Linn.
B E K

BANK, and county of Ayr. It is seated on a small eminence, and the streets are pretty regularly laid out. A lace manufactury gives employment to many of its inhabitants, and others are engaged in making flax-gut and cotton. Some considerable manufacturers reside in the town, and though it is too small to have returned only a few inhabitants at the commencement of the last century, yet the population now amounts to about 2,000.

The parish, extending about five miles in length, by four in breadth, contains principally arable land; but some farms, with others at Dunlop, are appropriated to the dairy system, and have long been famous for a particular cheese called the Dunlop cheese. Within the boundary of the parish is a small loch, containing abundance of fish, and near it is plenty of peat moss. Coal is found in many places; freestone is abundant, and the limestone quarries are almost inexhaustible. In the latter subsoil are frequently found various petrifications of shells, and other marine exuviae; and all manner of fossiliferous petrifications of woods, mosses, &c. The population of the parish and town in 1792 was 2,782. Sinclair's Statistical Account of Scotland.

BETHAM, B. S., in Biography, a learned Arabian botanist, called Mjafad, the botanist, from his skill in the science of plants, was born in Spain; and after visiting Africa, travelled into the Levant, Asia, and even as far as the Indies, to improve his knowledge. After his return he was patronized by Saladin at Cairo, and died in 1238. He wrote a General History of Plants, or of Plants, arranged in alphabetical order; in which he gives the Greek, Arabic, and vernacular names, with the descriptions of each, and particularly in a more detailed manner, those not deferred by Dioscorides and Pliny. Bothar's work is extant in the Persian, Eusenial, and other libraries. Herold. Pulteney's Hist. and Bio. Sketches, &c., vol. i. p. 19.

BEITSTADT, in Geography, a lake in the northern part of Norway.

BEJUO, in Botany. See Hippocratia.

BEJWA, called also Hofbeurpoor, in Geography, a town of Hindoostan, in the country of Lahore, about 3 journeys or 36 miles from Sirhind, 16 miles N.E. of Jallandhar, and about 25 geographical miles north of Rheem, and on 35 miles south of Haurpur.

BEIZA, or Beizath, a Hebrew word, signifying an egg, in Hebrew Antiquities, a certain measure in use among the Jews; they say that the heiza contains the fifth part of a log. The heiza is also a sort of gold coin common among the Persians; it weighs forty drachmas, and from this word, not from the city of Byzantium, the heza was formed. A heza is worth two dinars, and every dinar twenty or five and twenty drachmas.

BEK, David, in Biography. See Bick.

BEKA, in Geography, a valley of Syria, anciently called Cure-Syria, or the hollow Syria, separates the chain of mountains denominated by the ancients Anti-Libanus, from the Libanus of the Druses and Maronites, and by being the depository of the water of the mountains that enclose it, is rendered one of the most fertile districts of all Syria; but the heat of the sun, the rays of which are concentrated by the mountains, is in summer not inferior to that of Egypt. The air, however, which is perpetually refreshed by the north wind and by the stagnation of the waters, is not unhealthy. Before the earthquake of 1759, this whole country was covered with villages and plantations of the Motonellis; but the destruction occasioned by this terrible calamity, and the subsequent wars with the Turks, have occasioned a general defoliation. In this vale is situated the famous Balbec.

BEKAV, or Beka, a small town of Poland, in the palatinate of Lublin.

BEKES, a town of Upper Hungary, on the river Koros, which gives name to the Gepchenschatz.

BEKI, or Beka, or Bek, a river of Hungary, which runs into the Tama, near Tombor.

BEKIA, BECOURY, or BOCOUR, a small Brit, and of the Western Isles, about 12 leagues in compass, and containing 3,720 acres, being the head of the Grunald, called by the French, "Little Martiniac"; 35 miles N.E. of Grenada, and 63 leagues from Barbados. It has a safe harbour, called "Admiralty-bay," but no fresh water; and is principally visited by the inhabitants of Grenada and St. Vincent's for the purpose of catching turtle. The foils produces wool cotton, and plenty of water-melons. This island is depopulated of the residents of St. Vincent.

BEKKER, called BENCHER, BELLASAR, in Biography, a famous Dutch divine of the 17th century, was born in 1634, at Wartholten, a village in the province of Groningen, and pursued his studies first in the university of Groningen, and afterward at Franeker, where he became rector of the Latin school. In 1665, he took his degree of doctor of divinity at Franeker, and in the following year he was chosen one of the ministers of that city. In 1679, he published a catechism, intended for persons of mature age, in which he maintained some opinions concerning the right of Christian congregations to chuse their own ministers, and concerning the antiquity and usefulness of bishops, archbishops, &c. and in which he introduced some illustrations that implied his doubt of the eternity of hell torments, as inconsistent with the divine goodnes, which gave offense to several divines, and which incurred a profecution before the ecclesiastical authorities. This catechism, however, was approved and recommended by several learned professors; and it appears that the author had not, at the time of its publication, adopted those sentiments which involved him in future difficulties. In 1679, he was elected minister at Amsterdam; and in 1683, he published his "Inquiry concerning Comets," in which he concurred with Mr. Bayle in maintaining that they are not prelages of any evil. By this work, as well as his "Exposition upon Daniel," he gained great reputation; but having attached himself from an early period of his life to the Cartesian philosophy, he adopted Descartes' definition of spirit, and he was hence led to deny all those operations of the devil and other infernal agents upon mankind, which are related in the scriptures. His argument, as it is briefly stated by Dr. Machlane, the translator of Rother's history, is as follows: "The essence of mind is thought, and the essence of matter is extension. Now, since there is no sort of conformity or connexion between a thought and extension, mind cannot act upon matter, unless these two substanlces be united as soul and body are in man; and therefore no separate spirits, either good or evil, can act upon mankind. Such acting is miraculous; and miracles can be performed by God alone. It follows of consequence, that the scripture accounts of the actions and operations of good and evil spirits must be understood in an allegorical sense." To this argument it is replied, that by proving too much, it proves nothing at all: for if the want of a connexion or conformity between thought and extension renders mind incapable of acting upon matter, it is hard to see how their union should remove this incapacity, since the want of conformity and connexion remains notwithstanding this union; besides, according to this reasoning, the Supreme Being can, not act upon material beings; and it is in vain that Bekker maintains the affirmative by having recourse to a miracle.
for this world imply, that the whole course of nature was a series of miracles, or in other words, that there are no miracles at all. The author suggested doubts concerning the agency of the devil in several of his fables; and he alleged, that several were ascribed to the devil, in which this evil spirit had no concern. He was at length, viz. in 1691, permitted to publish his fables at large, in an elaborate work, entitled, "The World Bewitched." This work is divided into four books. The first contains an account of the opinions of the ancient and modern heathen concerning gods and demons, or spirits. In the second book the author examines all the passages of the Holy Scripture, which mention either angels or the devil, and endeavours to make them agree with his opinion, that the devil has not the least power in this world, and to shew that those passages, which ascribe several actions to god as well as bad spirits, or angels, must be explained in an allegorical manner. Accordingly, he denies that our first parents were tempted by the devil; alleging that this temptation is ascribed to the devil, only because it does not agree with the good of God, though Moses does not mention the devil, and that the punishment mentioned by Moses does not suit the devil, but only the serpent. He also urges several objections against the literal sense of our Saviour's temptation; and he maintains that those possested with evil spirits, which our Lord cast out, were merely sick or lunatic persons whom he cured, and in whose sickness the devil had no concern. (See Dagonian.) Bekker's work, though its fable was not new, occasioned great commotion not only in all the United Provinces, but in various parts of Germany. The author, persisting in his opinions, was publicly deprived from his paternal charge in 1692; but the magistrates of Amsterdam continued his salary till his death, which happened in 1698. Bekker not only retained his opinions after his deposition, but strenuously defended them against a multitude of adversaries as long as he lived. He was a man of a warm imagination, of an active mind, and of a firm resolute temper. His character was irreproachable; and he avowed to the last his full conviction of the truth of the Christian religion. In his defences he exhibited a moderation which he did not experience from his antagonists. A satirical medal was struck at his deposition, which exhibited the devil, in the habit of a minstrel, riding upon an ass, and holding a banner in his hand, as a token of the victory which he had gained in the synods. His opinions found several advocates; and he became the head of a sect which was called after his name. Gen. Dict. Moësheim's Eccl. Hist. vol. v. p. 632.

Bekkerism, in Ecclisialical History, the fable or sentiments of Balch. Bekker, who denied that spirits can act or operate on bodies. See the preceding article.

BEL, Matthias, in Biography, a learned historian of Hungary, was born at Orfova, in 1684; and after studying divinity at the university of Halle, he became first, viz. in 1708, rector of the evangelical school at Neufold, and in 1713, rector of the school at Pragburg. In 1719, he was hofen preacher by the German evangelical congregation in that city, and died junior minister in 1740. His two most valuable works are his "Apparatus ad Historiam Hungariae," and his "Notitia Hungariae Nova." The latter work was held in such high estimation, that it procured for him from the emperor Charles VI. the appointment of imperial historiographer, and the honour of being admitted into the royal academy of sciences at Berlin, and also into that of Petersburg. Pope Clement XII. also testified his approbation of it by conferring on the author his portrait and eight gold medals. The emperor, upon receiving the second volume of the work, raised him to the rank of nobility, but this circumstance Bel had only concealed. Among his other works are "Prodromus Hungariae antiquae et recentissimae," Vienna, 1735-1742, 4 vols. fol.; "Apparatus ad Historiam Hungariae," five Collectio Miscellae Monumentorum, &c. dec. 1 & 2; Pofon. 1735-1746, fol. He also translated into the Bohemian language the Bible, and some other books.

BEL, Charles Andrew, son of the former, was born at Pragburg in 1717, and studied at Jena and Altdorf. In 1741, he became extraordinary professor of philosophy at Leipsic; and in 1756, he was appointed public professor of poetry, and librarian to the university, with the rank of counsellor of state. He died suddenly in 1782. Among his writings are "De vera origine et epoca Humorum, Aranum, Hungarorum, in Pannonia," Leips. 1777, 4to. After the death of Menck, he was employed as editor of the Acta Eruditorum, and of the Leipsic literary gazette, which he conducted from the year 1754 to 1781.

BEL, John James, was born at Bourdeaux, in 1695, and having pursued his studies with great advantage in the college of the fathers of the oratory, and made distinguished acquirements in belles lettres, and also in metaphysics and morals, he was admitted councillor of parliament in 1720. After several visits to Paris, he finally settled at Bourdeaux; and in 1735, he was chosen director of the academy: but the excess of his application to a variety of scientific and literary pursuits hastened his death in 1738. To the academy of Bourdeaux he left the house in which it holds its sessions, and his valuable library. Besides several professional works, M. Bel published "An Apology for Mr. Houdart de la Motte," 1724, 8vo, which is an ironical criticism on the works of that author, and particularly his tragedies; "An Examination of the tragedy of Romulus, by la Motte;" "A Dissertation on the Abbé DuBois's opinion concerning the preference to be given to the perceptions of taste above reasoning, in judging of works of genius;" "Letters containing Observations on Voltaire's tragedy of Mariamne;" all which are inserted, together with some other papers of M. Bel, in "Memoirs of Literature and History," collected by father des Molets of the oratory. He was also the author of the "Neological Dictionary," arranged by Dr. Fontaine, and intended to expound the new words and advanced philosophy of several modern writers. Nouv. Dict. Hilar.

BEL, in Botany, the name of a plant, and also of its fruit, called by some the cucumis capparis, or coper-cucumber. A meta has given the most copious account of this plant, which is imperfectly described by others; and he says, that the fruit, which resembled a caper, was used in medicine, and resembled ginger in the fiery heat of its taste.

BEL. Sr. in Geography, a town of France, in the department of the Rhone and Loire, on the Breven; 31 leagues west of Lyons.

BEL, in Mythology. See Belus.

Bel and the Dragon. History of, in Biblical History, an apocryphal part of the book of Daniel, which, although it was annexed to this book, and formed the 14th and last chapter of it, was uniformly rejected by the Jews, and made part of their canon of scripture. It occurs neither in the Hebrew or Chaldee text, nor in the Greek version of the Septuagint, but was taken out of the Greek version of the Toldoteh. Africanus, Eusebius, and Apollinaris, have rejected the narration, not only as uncanonical, but also as fabulous; and Jerome also concurs in their opinion. Origen maintains the truth of the history contained in the 13th (or Susannah,) and 14th chapters, against Africanus, but does not assert it to be canonical. This history is also cited, as part of
BELA, in Geography, a town of Egypt, on the coast of the Mediterranean, 19 miles east of Trench.

BELBIA, in Ancient Geography, an island of Greece, in the Saronic gulf, near the promontory of Sounium, and opposite to the Scyliian promontory: mentioned by Pliny, Strabo, &c.—Alio, a town of the Peloponnesus, in Laconia, near which was a temple of Minerva.

BELDO, in Geography, a river of Italy, which rises about 2 miles east of Cae-sa, and runs into the Tanaro, five miles S.W. of Alexandria.

BELIUCH, a town of Germany, in the circle of Upper Saxony, in Pomerania, one mile N.E. of New Treptow.

BELVEN, and Zemiuduns, in Mythology, were regarded among the Vandalis as the good and evil gods. The former signified the white god, and the latter the black god. They were objects of divine honours.

BELCA, in Ancient Geography, a place of ancient Gaul, between Brivadiunum and Genabium, where was an amphitheatre.

BELCAIRE, in Geography, a town of France, in the department of the Ardeche, and chief place of a canton, in the district of Limoux, 31 leagues S.W. of Quillan. The place contains 915, and the canton 6757 inhabitants; the territory includes 2274, kilometer square, and 17 communes.

BELCANA, a town of Asia, placed by Ptolemy in the greater Armenia.

BELCASTRO, a small episcopal city of Naples, in the province of Cefalba Ultra; 10 miles N. E. of St. Severina.

BELCHER, a township of America, in the county of Hampshire, and state of Massachusetts, containing 1485 inhabitants, who subsist chiefly by farming.

BELCHERS, a cluster of islands in Hudson's bay, N. lat. 56° 10' W. long. 80° 33'.

BELCHIER, John, in Biographia, aurgeon of eminence in London, was born at Kingstown-on-the-Thames in 1766.
BELCHING. See Rucketation.

BELCHITE, in Geography, a small town of Spain, in the country of Aragon, seated in a fruitful soil, on the river Almonazir; 8 leagues south from Saragossa. N. lat. 41° 19'. W. long. 0° 36'.

BELCIANA, in Ancient Geography, a town of Asia, in Assyria. Ptolemy.

BELDEK, in Geography, a town of Hungary, 15 miles south of Zatmor.

BELDIRAN, a town of Asiatic Turkey, in the province of Caramania, 28 miles south of Cogni.

BELEBEV, or BSEBEFET, a town of Russia, in the government of Ufa, on the rivulet falling into the Diema, 60 miles south-west of Ufa. N. lat. 54° 14'. E. long. 54° 14'. This is also the name of one of the nine districts, comprehended by the province of Ufa.

BELÉKIS, a town of Sclavonia, 10 miles north-west of Belgrade.

BELEM, a town of Portugal, in the province of Estremadura, or in the vicinity of Lisbon, on the north side of the Tagus, in which are a considerable monastery and a royal palace. In its magnificent church, which suddenly funk in 1756, many kings and princes of the blood have been interred. Below Belem is a square tower called "Torre de Belem," fortified with cannon, which no vessel must pass till it has been visited. Near this tower, which is near a league west from the city of Lisbon, in N. lat. 38° 40'. W. long. 9° 40', are several batteries, and a small irregular fort, commonly called San Giao, built on a rocky point, and covering the entrance of the harbour, and opposite to it is another tower called "Torre velha," or old tower, strengthened by a few cannon and soldiers.

BELEM, a town of North America, in the country of New Navarre, 180 miles north-west of Ciaola.

BELEM, BELM, or BELM, a town and district of Germany, in the circle of Welfphalin, bishoöric of Olmbruck, and prefecture of Iburg; 3 miles east of Olmbruck.

BELEM, or PARA, a sea-port town of South America, in the country of Brazil, seated at the north head of the river Guanna, which falls into the river of the Amazonas. See PARA.

BELEM Cape, a high steep point, on the coast of Galicia, in Spain, about N.N.E. from cape Finisterre, between which is the projecting point of Cape de Toriase, bearing south-west four leagues from Belem. The principal rock of this rugged point, appearing like a black tower, is called the Monk, or Munich.

BELEMNITA, in Natural History, a species of Nautilus, in the sublence order of Vermes, with an uniform, smooth, conic, and acute shell, frequent among the rocks of Europe. See the next article.

BELEMNITE, or Thunderstone, Ptilie%te, Donnerstein, German. Belemnites, pierre de foudre, Dololyre, Fr. Belemnites, Lapis Lyncureus, Ideas Daftylus, Lapis Creanarius, Lat.

The belemnite is a fossil, which has obtained its name from the Greek Belem, an arrow, on account of its resemblance to an arrow-head. Its lengthened conical or spindle-shaped figure suggested a likeness to the finger, hence the name daftylus. The ignominious supersition of some of the ancients attributed the origin of this sublimates the congealed urine of the Lynx, on account of its strong smell when pounded or scraped; by others it was supposed to be one of the materials of the thunderbolt, and it has derived names from both these circumstances.

The form of the belemnite is generally intermediate between a long cylinder and a very acute-angular cone; the apex is a plain rounded point; the base is somewhat concave: at a distance between the base and apex, varying in length from one-third to one-fifth of the whole, the diameter of this fossil begins to increase towards the base in a considerably greater ratio than it did from the apex; the most correct idea, therefore, of its figure, will be formed by imagining a truncated cone terminated by another much longer and more acute-angular, rounded off at the extremity instead of coming to a sharp point. It is by no means common, however, to find belemnites thus perfect, being for the most part broken off at one extremity, and not frequently at both. Considerable variations are observed in the form of this fossil: it is sometimes expanded and somewhat flattened at the extremity, or nearly cylindrical, or enlarged and rounded off at the apex, so as to resemble a club. In the flattened varieties a longitudinal furrow on each side is occasionally observed. The colour of the belemnite is generally brownish yellow, with a transparency resembling alabaster. It uually consists of calcareous spar, mingled however with animal matter; for when exposed to a red heat it gives out an odour like burnt horn; sometimes it occurs converted into flint, at other times is found filled with pyrites, or even according to Volkmam, (Silefia Subterrana. § 155.) with galeana.

If a longitudinal section is made of a perfect belemnite, it will appear to be composed, like a cow's horn, of a number of elongated conical lamellae, inflected one into the other, covering a core or alveolus, also of a conical shape, but extending never more than a third of the length from the base towards the apex. A croês fracture of this fossil beyond the alveolus exhibits a number of rays converging from the circumference towards the centre, and as many concentric circles as there are conical lamelle.

The alveolus of the belemnite is a conical body, divided transversely into cells by bony parietes resembling watch-glasses; the centre of each of which, according to Platt, Robinus, Sage, &c. is perforated to receive a tube or fihnelus, which pusses from the apex to the base of the alveolus, and thus communicates with all the cells, in the same manner as is observable in the nautilus, the ammonite, and orthoceras.
Two such fires, says Toland, were kindled near one another on May-eve in every village of the nation, as well throughout Gaul, as in Britain, Ireland, and the adjoining isles, where between which fires the men and beasts to be sacrificed were to pass; from whence came the pagan "between Bel's two fires," meaning a person in a great rout, not knowing how to extricate himself. One of the fires was on the caur; the other on the ground. On the eve of the full day of November there were also such fires kindled, accompanied with sacrifices and feasting. All the people of the country on this eve extinguished their own fires entirely; and every matter of a family was religiously obliged to take a portion of the consecrated fire home, and to kindle the fire anew in his house, which for the ensuing year was to be prosperous. The Celtic nations also kindled other fires on Midsummer eve, which are still continued, says Toland, by the Roman catholics of Ireland, making them in all their grounds, and carrying flaming brands about their corn-fields. This is done likewise in France, and in some of the Scottish isles. These Midsummer fires and sacrifices were intended for obtaining a blessing on the fruits of the earth, now ready for gathering; as those of the fril of May, that they might prosperously grow; and those of the full of October were a thanksgiving for finishing their harvest. But in all of them regard was had to the several degrees of incense and decrease in the heat of the sun. Toland’s Hist. Druids in his Works, vol. i. p. 60, &c. Henry’s Hist. vol. i. p. 156, &c.

BELERIUM, (Dodd. Soc. i. v. c. 22.) or Bolerium, (Ptol. i. ii. c. 3.) called also by Ptolemy “Antiveilbnem,” in Ancient Geography, is the promontory formed by the most westerly point of Britain, now known by the name of “Land’s End.”

BELESEME, in Geography, a town of France in the department of the Orne, and chief place of a canton in the district of Mortagne, 3 leagues S. from it. The place contains 2768 and the canton 13,022 inhabitants; the territory includes 170 kilometres and 15 communes.

BELESTA, or BELESTAT, a town of France, in the department of the Aude, and chief place of a canton, in the district of Quillan, 10 miles west of Quillan.

BELLETTE, in Zoology, a name under which Buffon describes the common weevil, meyella sfviron of Gmelin.

BELZE, in Geography, a town of South America, in Terra Firma, and province of New Grenada.—Also, a river of Spain, which runs into the Mediterranean, between Barcelona and Tarragona.

BELFAST, a considerable town of Ireland, in the county of Antrim, and province of Ulster, situated at the mouth of the river Lagan, which separates it from the county of Down. The town, except a small portion of it, is not elevated more than six feet above high water mark at spring tides. Belfast, or the bay of Carrickfergus, into which the Lagan flows, is a spacious estuary, a great part of which is left dry every tide, which is the case likewise with Strangford lough, another great estuary, the nearest extremity of which is distant about 8 miles S.E. Between Belfast and Lough Neagh, which is about 12 miles wide off it, there is a chain of mountains, the height of which, called Devils, is about 1580 feet high. The roots of these mountains extend to the neighbourhood of the town. Mr. Arthur Young found them to consist of very good loam to their summit, and complain of their being neglected. As tillage, however, is improving in that neighbourhood, it may be supposed that there is no longer cause for such complaint. There was formerly a castle at Belfast, which seems to have been a poll of importance, as it was twice taken and destroyed by the Earl of Kildare.
B. E. L.

lord deputty, in 1503 and 1512. After the complete reduction of Ireland at the beginning of the 17th century, Belfast became the property of Sir Arthur Chichelester, afterwards lord deputty, and baron of Belfast, who exerted himself in the settlement of Ulster. Through his influence it was made a borough, and lent two members to the Irish parliament; and an English gentleman, who travelled through part of Ireland in 1557, and whose manuscript journal is in the possession of general Vallancey, mentions that lord Chichelester had a lately palace at Belfast, which was the glory and beauty of the town, and which was his chief residence. Through the influence of this bottmerman, the custom-house was removed from Carrickfergus to Belfast by the earl of Strafford in 1638, for which a compensation of £20,000 was paid to the corporation of Carrickfergus. In 1648, Belfast was taken possession of by colonel (afterwards the celebrated general) Monk, for the parliament of England. So late as 1726, when Boate's Natural History of Ireland was re-published by Dr. Molyneux, it was a small place of little consequence. But situated in the centre of a populous and industrious country, it has since become one of the most interesting objects in Ireland to the political economist. The town is well-built, lofty of brick, and the streets are broad and straight. The bridge over the Lagan is 250 feet long with 21 arches; it was built about the time of the revolution, at the joint expense of the counties of Antrim and Down, and cost £12,000. Eighteen of the arches are in the former, and three in the latter county. With regard to size it is the fifth, and with respect to commerce, is generally reckoned the third town in Ireland, being next to Dublin and Cork. Vessels of 200 tons hayl loaded usually come to the quay, there being about ten feet water at spring tides, but now the water at the quays is from nine to thirteen feet deep according to the time of the moon, having been deepened by the exertions of the ballast corporation. Vessels which cannot come to the quays lie two miles and a half below the town, where there is very good anchorage. The West India trade was considerable before the late war, and has revived since the restoration of peace. The trade in pork and butter has increased very much of late years; and also the American trade. The export of linen both to England and America is very considerable. In 1773, the gros custom, according to Mr. Young, amounted only to 64,800l. including the excise upon tobacco and foreign spirits. In 1792, it amounted to £87,016l. 6s. 2d. In the following year it decreased on account of the disturbed state of the country, but it has since gradually risen; and in the year ending 5th April 1802, amounted to £236,800l. 64s. 3d. The excise of Belfast in 1796 was only 909l. 13s. 2d. but previous to the frappage of the distilleries it had risen to 22,165l. 3s. 6d. exclusive of Carrickfergus and Templepatrick, which walks are included in the same district. The duty on licences in 1801, amounted to 4300l. Though the increase, as in other places, must be partly attributed to the increase of duties, yet the extension of trade must also have been considerable. The population of Belfast was taken at different periods by a gentleman who filled the office of high constable: but not officially. In 1782, the number of inhabitants appeared to be 13,105; and in 1791, 18,320, exclusive of 1,258 in Ballymacarret, the suburb on the Down side of the river Lagan. There were in 1791, 655 looms, of which 522 were employed in the cotton manufacture, 129 in that of cambric and linen, 28 of sailcloth, and 16 of flaxwork. There are also manufactories of glass, linen, and earthen-ware. The public buildings are not many; the linen hall is large and commodious, and there is a good assembly-room over the Exchange. There is a barrack which contains about 800 men. The church is a handsome structure, but is too small for the parish. Other places of worship are, four presbyterian meeting-houses, one sconce, and one Methodist meeting house, and one Roman Catholic chapel. The charitable institutions are, a poor-house and infirmary, which maintains and clothes 300 of variousages, and is conducted on the same plan as the Dublin house of industry: several hospitals, a dispensary, a lying-in hospital, a charity-school for boarding girls, a day-school for boys and girls, a Sunday-School, and a school of industry for the blind, besides of them very extensive, but sufficiently for such an industrious country. It is probable that the Hamburg plan, described by Mr. Voglt, from which such unceasing benefit has been derived, would succeed better in Belfast than in any other town of Ireland, and from the public spirit and active disposition of the inhabitants, it would, without doubt, be well attended to. In such a town as Belfast, many commercial institutions might be expected; and we accordingly find a chamber of commerce, a ballast office corporation, two insurance offices, &c. There are also a library society, under the title of the Belfast Society for Promoting Knowledge: and a literary society, lately established on a plan similar to that of other societies for philosophical and literary pursuits. An academy for the education of the higher classes in this town, was founded by the inhabitants in 1785, and has been hitherto under the care of a presbyterian minister, but the advantages of it are not confined to any sect. Belfast is situated 80 miles north of Dublin, and lends one member to the imperial legislature. W. long. 5° 49'. N. lat. 54° 43'. Variation W. August 8th, 1789, 11° 15'. P. M. 26° 20'. Arthur Young's Tour. Dr. Beaumont's Memoir, &c. &c.

BELFORD. A market town of Northumberland, England, is seated on the great post road from London to Edinburgh, at the distance of 322 miles from the former. This town, though small, is particularly neat, and its houses are ranged on the ridge of a hill, which commands a view of the North sea. The church was built in 1700; near it are the ruins of an old chapel, and at a short distance are the tombs and vault of an ancient encampment. Here are a weekly market on Tuesdays, and two annual fairs. The number of houses in the township is 161, and of inhabitants 902.

About four miles east from Belford, is Damborough castle, the origin of which is attributed to king Idas, who began his reign about the year 550. The present remains are considerable, and appear to be wholly the relics of Norman architecture, though our historians are decidedly of opinion that they occupy the site of a Saxon fortress or palace. This was besieged in the year 624, by Penda, the pagan king of the Mercians, but without success. In the year 710, king Oigh, on the death of Alfred his father, fought refuge here, with Britthric, his tutor or guardian, and after a gallant defence, repulsed Edulph and his partizans. In the reign of Egbert, this castle was made the prison of Kenneth, bishop of Lindisfarne, who was confined here from 750 to 780. In many subsequent periods, it was the scene of repeated sieges, and suffered successively by the Danes, by the Normans, and by the Yorkists.
BELFORT, a town of Italy, in the duchy of Parma, 19 miles S.S.W. of Parma.

BELFRY, Belfredus, is used by middle-aged writers of the middle age for a fort of tower, erected by belges to overlook and command the place besieged. They were all called belvedus, bercedus, vercedus, and belfragiun. Their structure and use are described in verses by a poet of those days.

Belfry originally denoted a high tower, wherein sentinels were placed to watch the avenues of a place, and prevent surprize from parties of the enemies, or to give notice of fires by ringing a bell. Du-Cange.

In the cities of Tindars, there is no belfry on purpose, the tower of the chief church serves the same end. The word belfry is compounded of the Tentonic "bell" and "fire," hence, because the bells were hung for preserving the peace.

Belfry is also used for that part of a fleape wherein the bells were hung. This is sometimes called by middle-aged writers companius, eclacaria, and triflegium. Du-Cange. This is sometimes used in heraldry as a crest.

Belfry is more particularly used for the timber-work, which sustains the bells in a fleape; or that wooden structure, to which the bells in church-fleapes are fastened.

Belfry, Graus, in Orylogy, the alarum trump of Latham, and turbus trumpus of Gmelin, le grand heaut of Buffon, is so called by this latter naturalist, from the angular form which it makes in the evenings and mornings, and which resembles the din of an alarum bell. The succession of sounds is as rapid as the quick strokes of a bell, and continues about an hour. See Turdis Tintinnans. The "small belfry," is the speckled trump of Latham, and Turdis Lithus of Gmelin, which see.

BELGIA, in Ancient Geography, were Scythians or Goths, who, according to Aesop, drove the Cimbri or northern Celts before them; and at a long period preceding the Christian era, settled on the north-west part of Gaul, where they acquired the provincial denomination of Belgia; and from them the country which they inhabited obtained the name of Belgic Gaul. Writers are not agreed as to the etymology of this appellation. As they were a fierce, contentious, and warlike people, and dispersed over all their neighbours, according to the character which Caesar (Comment. 1. b. c. 4.) has given of them, some have supposed that they were called "Belga" or Belga, on that account; the word "Belga" in the old Tentonic signifying "fierce" and "quarrelsome." Others have suggested, that the term "Belga" is synonymous with the Celtic "Belghies," and that the inhabitants, who inhabited that, were Celte belga, of the more northern part. Others again have derived the word from "Belgen" or "Belgen," signifying stranger. Some time after their settlement in Gaul, but at an unknown period, they penetrated into Britain; and accordingly when Cesar first explored this island, he informs us (1. v. c. 12.) that the primitive inhabitants were driven into the interior parts, whilst the regions on the south-west were peopled by Belgic colonies. The Belga may, therefore, be justly regarded as the chief ancestors of the English nation. On the continent, the Belgia having taken possession of part of Gaul, and being naturally a ferocious people, engaged frequent wars with the Germans; so that these two nations continued in a state of hostility and friendship, sometimes invading each other's territories, and at other times afflicting each other against the Romans. In the time of Cesar, the Belga, alarmed at the success of the Romans in their expeditions against the Germans, formed a great alliance with the Celts, Germans, and Gauls, in order to drive them further from their neighbourhood. Cesar, according to his usual manner, found means to sow such discontents among them, that many of these allies submitted to him; however, the Nervii, Attrebutae, and Veromandui, stood firm, and though at length defeated, it was one of the decisive victories which Caesar had ever obtained; and, in consequence of this defeat, the whole Belgic nation was compelled to submit to the Roman yoke. The Belga of Britain were feated to the east of the Durutriges, on the same coast, and inhabited the counties now called Hants, Wilts, and Somer-Set. When Cesar invaded Britain, some part of this country was polli-fi ed by the Segontiaci, whose chief town was Winchester, called by the Britons "Curn-fagent," from the name of these, its ancient inhabitants. But these people seem to have been soon after subdued by and incorporated with the Belga, as they are never afterwards mentioned. As to the first introduction of the Belgia into Britain, history is silent; but with respect to some few of the latest colonies who settled here not very long before the Roman invasion, and who inhabited the south parts of Britain, Caesar informs us (1. v. c. 12.) "that the sea-coast of Britain is peopled with Belgia, drawn thither by the love of war and plunder." "These left (he says) purposing to settle upon distant parts, and settling in the country, till they take the names of the several fates from whence they were descended." The late Belgae of these Belgic colonies came into Britain only a few years before Caesar's invasion. This colony was confined by the Britons, king of the Sudones, one of the most powerful of the Belgic nations in Gaul; and had obtained a footing on the British coast, but was continued to reign over the Belgia in this island, as well as over his ancient subjects on the continent. In his continental territories, he was succeeded by Galba, and in his British dominions by another of his sons, perhaps Segonax, who attempted to destroy Caesar's fleet. Although the Segontiaci submitted to Caesar, we have no account of the submision of the Belgia to that conqueror. The honour of subduing that British nation was reserved to Vespasian, who, landing an army in these parts, A. D. 49, fought battles, took more than 20 towns, subdued two very powerful nations, one of which was the Belgia, and the site of Wight. After this time, the country of the Belgia was much frequented by the Romans, who made in it many excellent military ways, and built several beautiful towns, which are mentioned by both Procon and Antoninus. The most remarkable of these towns were Venta Belgarum, Winchester, famous for the imperial worship which was there established, and Aquae Solis, Bath, even then renowned for its warm and salutary springs. The country of the Belgia was included in the Roman province, called Traia Caeranis, and governed by the president of that province, and his inferior officers. Henry's Hist. vol. i. p. 276, &c.

BELGARD, or BELFERD, in Geography, is a town of Germany, in the circle of Upper Saxony, and chief place of a circle to which it gives name, in the district of Permanitz, seated on the Perfahr, and noted for its market for horses. It was placed of some distinction as early as the 11th century, for strength and for the number and value of its inhabitants; but it has suffered much by fire and by war; particularly by the 32 years' war. By the treaty of Westphalia, it devolved to the house of Brandenburgh. It has a castle and a provostship, and is the seat of a royal bailiwick. N. lat. 54° 10'. E. long. 16° 51'.

BELGAR. N, a town of Germany, in the circle of Upper Saxony, and marginate of Meifen, seated on the river Elbe, 36 miles N. W. of Dresden, and 24 N. W. of Meissen.

BELGERS, a town of Avarie Turkey, in the province of Caramania, 78 miles west of Cogn.

BELG EVAN, a town of Avara, in Tartary, in the kingdom of Bucharia, and province of Cutland.

BELGICA, in Conology, a species of Sabella, very briefly
BELGIUM, a canton of Gallia Belgica, from which it is distinguished by Caesar (l. v. c. 42.) as a part from the whole; to this canton he assigns the Bellovaci, to whom Hirtius (l. viii. c. 46 and 47.) adds the Attrebat. And as the Ambiani were situated between the Bellovaci and Attrebat, these also must be included in Belgium, which must have extended to the sea. These three people, says Cellarius, were the proper and genuine Belgae, all the rest being adventurous, or foreigners. See Ambiani, Attebatii, and Bellovaci.

BELGIUS, a river of Africa in Libya. Helychius.

BELGNA, a town of Arabia Deserta. Ptolemy.

BELGOROD, in Geography. See Belgorod, and Akerman.
cope with an army much superior in number to his own. He accordingly began to call up lines of circumvalation and contravallation, strengthening them with entrenchments, redoubts, and other field works of the necessary description. Within these lines the army encamped to the south of Belgrade; its front towards the open country, its left relying upon the Danube; its right extending towards the Save. A bridge of boats was thrown across the latter river, and, as well as that already constructed on the Danube, secured by strong trèfes de pont. The line of contravallation, looking towards Semelria, consisted of a ditch, sixteen feet wide, of proportionable depth, and defended by a strong parapet. The proper openings were left for the troops to issue and form in order of battle without confusion, covered in front by ravelins and redans; and upon the right, a large flèche, or redoubt, was erected for the purpose of commanding a hollow ground, which the Turks might otherwise have found serviceable in their approaches. The field pieces of all the different battalions, planted at regular distances along the front of the contravallation, secured it from any sudden inful.

As, however, the army was not sufficiently numerous to occupy the whole extent of ground between the two rivers, cross entrenchments were formed, connecting the principal lines on the right and left, and still preparing a communication with the different bridges.

As the Turkish garrison consisted of between twenty and thirty thousand regular troops, and had also a florid flotilla on the Danube, Prince Eugene found it absolutely necessary to maintain two flying camps: one of several thousand men at Semlin, to keep up a communication with Peterwaradin, from whence the Imperialists derived their supplies of provisions, under Count de Haseben; and another of five battalions and some cavalry to cover the head of the bridge over the Danube. Four ships of war protected the navigation of that river, and watched the motions of the Turkish flotilla. But a violent storm which happened on the 13th of July, had nearly rendered abortive the projects of the besiegers. The bridges of the Danube and Save were broken by the force of the tempest. Several vessels, detached from the ret, were carried floating at random down the stream, and the Turks took advantage of this accident to make a sally across the Save, and attack the redoubt which covered the head of the bridge. The gallant defence of a captain and 64 men, who alone garrisoned the post, preferred it, together with that part of the bridge which remained on the north side of the river, from falling into the hands of the enemy. To prevent such forties in future, the camp of Semlin was strongly reinforced, and the command entrusted to Count Marigny. More serious operations commenced; and during the night of the 18th, trenches were opened against Belgrade to the north of the Save by 1,200 pioneers, covered by a large detachment under General Marigli. The Turks, however, the following morning, opened a dreadful fire upon them from all the batteries of the place, the flotilla on the Danube, and the islands in that river, and making a forte with 4,000 men in boats, assaulted to furiously the guard of the trenches, that if Prince Eugene had not animated the troops by his personal presence and bravery, in repulsing the attack, a total defeat must have ensued. As it was, General Marigli, with twenty other officers of state, and 400 soldiers, persisted in this affair. It became necessary to augment the guard of the trenches to nine battalions, and construct new lines. In six days a complete chain of works was established from the bridge along the Save to its influx with the Danube, and from thence ascending the course of the latter river to the camp of Semlin, defended with redoubts, and well provided with artillery: infomuch, that from the moment of their completion, the garrison attempted no further falls.

On the 23rd of July, the cannonade and bombardment commenced from all the Austrian batteries, with dreadful effect, and by the 29th, Belgrade resembled, towards the water, a heap of ruins. But the excellent state of their fortifications on the side of the besieging camp, and expectations of approaching succours, alarmed the garrison to maintain a most vigorous resistance. Their expectations were not delusive. The grand vizier, having drained the Turkish provinces of soldiers to complete his army, had already begun his march, and on the 28th his advanced parties appeared in sight, and began to skirmish with the Austrian out-posts. The number of these marauders daily increased, and on the last of July, the vizier with his whole army arrived in presence of the Imperialists, as if they had literally been a town besieged. Eugene found himself compelled, by this mode of attack, to adopt new dispositions. He instituted additional artillery on his own lines, defended all the avenues with chevaux de frize, mined the ground before the flèche already mentioned, and called in part of his troops from the opposite bank of the Save. Nevertheless, the Turks, pursuimg their projected plan of operations, pushed their approaches in spite of the dreadful havoc which the Austrian bombs and grenades incessantly made among them to within musket shot of the contravallation. Their army amounted to upwards of 200,000 men. Their works were mounted with 120 pieces of cannon and mortars. The garrison, who now fullained some repulse from the fire of the Austrian batteries, directed their own upon the tents of the besiegers, and thus situated, between two hostile armies, who from their situation commanded more or less every part of his position, Eugene found himself enfiladed by the fire of upwards of 250 pieces of artillu. His situation became day after day more precarious. The dyfentery, which for the last month had done great mischief in his camp, now raged to such a degree that hundreds were buried in a day. A mortality prevailed among the foragers, in consequence of which half of the cavalry were difmounted; and an army which, at the opening of the campaign, amounted to above 80,000 men, could now only muster 60,000 effective. Though no immediate scarcity of provisions or ammunition was experienced, yet the disappointment of the expectations Prince Eugene had conceived, that the Turks would be obliged to retire for want of provisions, obliged him to determine without delay on some decisive measure: specially as the vizier had occupied an eminence adjoining the Save, with a considerable body of troops, and might, by sending 20 or 30,000 men across the river, have rendered a retreat, in case of defeat, impracticable to the Austrians. Under these circumstances, it was resolved, in a general council of war held on the 15th of August, to be before-hand with the enemy, by making a decisive attack on their camp. The detachments beyond the Save were immediately called in, except about 1,400 foot, and 250 horse. Seven regiments of cavalry and ten battalions with all the dismounted horse and dragoons, were left in the lines to observe the garrison. Eleven regiments of cavalry, commanded by field marshal count Palu, and general count Merci, composed two lines on the right, and marched out before midnight. The left wing, consisting of 12 regi...
ments, marched out at the same time, commanded by general Montecuccoli and Martiguy. The infantry, under prince Alexander of Wurtemberg, in chief, was drawn up in the centre; the first line of 22 battalions, conducted by count Maximilian of Staremberg, and count Harrach; the second, of 18 battalions, by the prince of Bevern. The corps de reserve, with which marshal Seekendorf remained in the lines, ready to act as occasion should require, was composed of nine battalions. The effective force of the two lines, on whom the success of the day in a great measure depended, did not amount to more than 40,000 men; yet, notwithstanding this immense inferiority, the confidence of the soldiers in their commander was such, that they received the orders to prepare for action with the greatest cheerfulness, and marched out, as if inspired with a certainty of victory.

At one in the morning the Imperialists, favoured by a thick fog, quitted their trenches; the right advancing towards the fleeces, which was assigned as its point of formation, and the left over the open ground adjoining the Danube. Two hours were spent in making the necessary preparatory movements; but the fog, which had hitherto favoured the Imperialists, increased to such a degree as to become productive of serious inconvenience. The right wing, missing its way, stumbled, instead of the fleeces, upon one of the Turkish advanced works. The surprise was equal on both sides; but a discharge which immediately opened upon the Austrian cavalry from the guard of the trenches, spread the alarm throughout the whole of the grand vizier's army. His troops instantly rushed from every part of the camp towards the scene of action, and in a few minutes count Palli became hotly engaged. The Austrians, formed in a hurry, and their battalions, through fear of losing the support of the cavalry, inclining successively to the right flank, a wide vacancy was left in the centre, and afforded the Turks an advantage of which they did not fail to profit. Meantime, the combat, once engaged on the right, quickly commenced on the opposite flank. Prince Eugene had intended to begin the attack with both wings at the same time; but convinced by the heavy firing he heard towards the Save, that Palli had already begun the battle, he himself obliged to come to blows, before the battalions of his left wing were completely formed. It was now between four and five o'clock in the morning. The fog continued so thick as to prevent the combatants from discerning each other, till they arrived almost close to the masses of their adversaries' pieces; and owing to this obscurity several small detachments of Austrians, whom a desire to signalize themselves carried unawares into the thickest of the enemy, were entirely cut off. The assailants nevertheless gained ground. As the darkness obliged them to march with their firelocks always presented, the fire they poured in, the moment they perceived their enemies, was so close, so well directed, and did such prodigious execution, that the Turkish battalions, as they advanced in succession, were broken, disordered, and precipitated headlong into their trenches, where the bayonet and sabre made dreadful havoc among them. The cavalry were not equally successful; the broken nature of the ground obliged them to perform frequent evolutions in order to find some passages of easier access, and the Turks, who lined the trenches, called them with severe and incessant firings. The centre of the enemy's army too finding nothing to oppose them, threw several battalions into the void space between the flanks of the Imperialists, and completely intercepting all communication, opened a heavy fire to right and left upon the divided forces. The battle, under the present circumstances, seemed irrecoverably lost, but the fog, at this critical moment clearing up, discovered to prince Eugene the disposition of both armies, and his own perilous situation. The advance of the second line prevented his total defeat. The prince of Bevern, who commanded it, marched up to the Turks, whose success had thrown them into disorder, and charged with such fury, that the infidels, unable to sustain the shock, fled in disorder, and were pursued up to their very trenches, leaving the space where they had been defeated covered with their dead. This success gave a new turn to affairs. No time was lost in filling up the interval that had been so unwarily left, and in forming the two wings of the imperialists for a new effort. The impatience of the soldiery to engage prognosticated success. The right began the attack; carried with irresistible impetuosity the batteries whose fire they had hitherto sustained, and turned the cannon against the entrenchments which protected the Turkish camp. The left experienced more opposition. The enemy had their principal forces on that side, and these, reinforced by several corps whom the succours of count Palli had driven from the right, constituted an immense superiority. The janizaries defended themselves with great bravery, and repulsed the Austrians in their first attack; but these rallying, returned to the charge, beat the Turks from their outermost entrenchment, and pursuing their advantage, advanced regularly up to the second, without firing a musket till they came within ten paces of the enemy. This work was carried in less time than the first: the Turkish entrenchments were forced one after another, as well as several capons with which their camp was defended; and notwithstanding the resistance was attempted at each of them, and the Austrians experienced everywhere a terrible fire, yet the courage and conduct of prince Eugene outmatched every obstacle, and obliged victory, after a struggle of six hours, to declare in his favour. The left serious hand made by the infidels, was at the grand battery mounted with 18 pieces of cannon, and defended by 30,000 janizaries, sustained by 10,000 infidels, the bravest troops in the Turkish army. It was necessary to halt and form the troops anew for this perilous attempt; but when the word to charge was given, they rushed forward with an impetuosity nothing was capable of_solvering. The Imperial grenadiers, in defiance of the fire from the battery, bore down all opposition, mounted through the embrasures, and drove the Turks from their guns; while the rest of the army made such slaughter, that the bodies of the slain roved in heaps round the redoubt. The routed forces, driven on all sides from their entrenchments, retired into the plain, as if to form once more for the defence of their camp; but observing the Imperialists, after having gained the heights, advancing towards them in good order, they betook themselves to flight in every direction, leaving their camp, baggage, and ammunition, at the mercy of the conquerors. The victory was complete by 9 o'clock in the morning. The plunder of the infidels' camp, which resembled a large city, was given to the soldiery.

This battle, fought on the 16th of August 1717, cost the Turks 10,000 of their best troops killed in the action, and 3,000 in the pursuit. About 5,000 were wounded, and nearly the same number made prisoners. In the Turkish camp and lines were found 131 pieces of brass cannon, 30 mortars, and an immense quantity of powder, bullets, bombs, and grenades. There were also taken 52 colours, 9 horsetails, and other military trophies. The loss on the German side, by reason of the fog, was not in proportion to the length of the light. Their killed amounted to nearly 3,000 men, among whom were the generals count Hauben and Dalberg; and about 4,500 were wounded. Of the latter, however, only about 2,000 recovered. In consequence of this great victory,
BELGRADE was rendered on the 19th; the garrison still consisting of more than 25,000 men, being allowed to march out with all their effects. Its fortifications towards the land were in a marred exalted state, and more than 400 pieces of cannon and mortars placed on the works, in the artillery, and on the head of the Danube.

Belgrade, which its defenders or Palfronowitz left in possession of the Austrians, was successfully attacked by the Turks in 1739; but the treaty concluded that year under the mediation of France, it was restored to the Porte. Its fortifications were, however, previously demolished. In 1759, it was besieged (Sept. 12) by an Austrian army under Marshal Landolin, who in his approaches made use of the old lines of circumsallation constructed by Prince Eugene, and with which the Turks, from an unresolvable negligence, had neglected to fill up. The works, aided by a numerous and well-armed train of artillery, proceeded with such rapidity in its attacks, that after all the suburbs and outworks were held on guard, the garrison, apprehensive of a storm, surrendered (Oct. 8) upon honourable terms. Imme- diately, with about 300 pieces of artillery, were found in the place. Belgrade was, however, anew given up to the Turks in 1791, at the peace of Silava, since which time it has continued quietly in their possession.

BELGRADE, a township of America, in the county of Lincoln and district of Maine, incorporated in 1765; formerly called Washington-plantation. It lies well of Sidney, and between Androscoggin and Kennebec rivers.

BELGRAO, a town of the Venetian states of Italy, in Friul, situated near the river Tagliamento. N. lat. 46° 15' E. long. 13° 51'.

BELHAVEN, the former name of Alexandria, in Fife, county, Scotland. See ALEXANDRIA.

BELI, in Entomology, a species of Pappilo, with entire white wings; the lower ones yellow, and slightly faceted with grey beneath. A native of Barbary. Fabricius.

BELIA, in Ancient Geography, a town of Hesperia Tera- pografia, is the country of the Hesperitani (Pol.); called of Belisus, and nearly south-east of Caezar-Augusta (D'Aubin); now Belchina, which is.

BELIAL, formed of BEL, no, nothing, and YAL, denoting in Hiphil, to profl, p. d. unprofitable; in Scripture His- tories, signifies a wicked wrathful person who failed to endure subjection. Thus the inhabitants of Gebaon, who shone as the Levites' wif, are figuratively of the name of Belial. (Judges, xix. 23.) Hophni and Phineas Eli's sons, are called sons of Belial (1 Sam. i. 12). On account of the fearful crimes they had committed, and their indecent behaviour in the temple of the Lord. Sometimes, says Calmet, the name Belial is used to denote the devil. To that purpose, he cites 2 Cor. vi. 15, where the apostle Paul says, 'What concord hath Christ with Belial? Where it appears, as the supposition that in the apostle's time, the Jews, under the name of Belial, commonly understood the devil in the place where this term occurs in the Old Testament. Others are of opinion, that the heathen demons might be called "Belial," either because they were of no use; or because so much wickedness was contained in the idea which the Pagans entertained of them. However, it has been suggested, that there may be no reference to the heathen god at all, whether they were devil ghosts or not; the word Belial being often applied to living men; and it being the general name of the apophis in this place to disgrace Christians from suffering themselves to be drawn into any thing criminal by the heathens. Grot. in loc. Farmer's Diction.

BELING, the learned Bryant (Analysis Anc. Mythol. vol. ii. p. 161.) considers Belial as the title of the chief Sylian god, called Bel or Belus, and rendered by the Greeks Belus, bed lar. Hence, Clemens Alex. (l. ii. p. 662.) instead of saying what agreement can there be between Christ and Belial, says, 'et in suppliciis non est solum hono. This Belial, or Bel- lar, was the same as Belorus and Oroes, who were worshipping the sybus of the earth. Hence Hesychius explains the term Beliar by a serpent.

BELIAS, in Anc. Geography, a river of Afa, which sprang in Dyana, and discharged itself into the Euphrates. Ammian. Marcell.

BELICIA, an episcopal town of the Gauls, in the fifth Legionary.

BELICENA, a town of Spain, in Grenada, 2 leagues from Grenada.

BELICLI, a river of Sicily, which empties itself into the sea near Bigini, in the Val de Mayura. It resembles (says Swallows, vol. iii. p. 374.) the Mole in Surrey in size and colour; and winds very agreeably between high banks overgrown with elms, willows and tamarisks. The vale on both sides is wide and well laid out in corn-fields, and palestres crowded with herds and harnessed cattle.

BELIDA, See BELIDA.

BELIDES, in Antiquity. See Danaides.

BELIDOR, Bernard Forest de, in Biography, a French mathematician and engineer, was born in Calais, about the year 1698, and became professor-royal at the artillery school of la Fere, and provincial commissary of artillery. By various exploits, he first discovered that the proportion of gun-power in the loading of cannon might be reduced to two-thirds of the quantity, without lessening its effect, but as he communicated this economical idea to cardinal Fleury, without previously consulting the grand-mastery of artillery, he left both his places. Upon this the prince of Conti took him to Italy, and by his patronage, Belidor was again brought into notice at court. Marshal Bellefeu, the war-marshal, appointed him inspector of artillery, and allotted to him apartments at the arsenal of Paris, in which he died, Sept. 8, 1761. Belidor was chosen an associate of the academy of sciences in 1751; and was the author of several useful works on civil and military architecture, hydraulics, fortification, and engineering; viz. 'Somme, d'un cours d'Architecture Military, civil et hydraulique,' 1736, 12mo.; 'Nouveau cours de Mathematiques, &c.' 1735, 4vols.; 'La Science des Ingenieurs,' 1729, 4vols.; 'Le Bombardier Francois,' 1734, 4vols.; 'Architecture Hydraulique,' 1757-1761, 4vols.; 'D'etornage portatif de Pinceaux,' 8vo.; and 'Traite des Fortifications,' 4vols. Several of his pieces are also inserted in the memoirs of the academy of sciences for the years 1737, 1755, 1753, and 1756. Nouv. Dict. Histoire Math. Dict.

BELIEF, in its general and natural sense, denotes a persuasion, or a strong affent of the mind to the truth of any proposition. In which sense, belief has no relation to any particular kind of means or arguments, but may be produced by any means whatever. Thus we are said to believe our senses, to believe our region, to believe a witness, &c. And hence, in rhetoric, all sorts of proofs, from whatever topics deduced, are called 'beliefs,' because apt to produce belief, or persuasion touching the matter in hand.

Belief, in its more refined and technical sense, invented by the schoolmen, denotes that kind of affent which is produced only on the authority or testimony of some person or persons, affecting or attesting the truth of any matter proposed. In this sense belief stands opposed to knowledge and science. We do not say we believe that snow is white, or that
that the whole is equal to its parts; but we see and know them to be so; that the three angles of a triangle are equal to two right angles, or that all motion is naturally rectilinear, are not said to be things credible, but scientifical; and the comprehension of such truths is not belief, but science. But when a thing propounded to us is neither apparent to our senses, nor evident to our understanding; neither certainly to be collected from any clear and necessary connection with the cause from whence it proceeds, nor with the effects which it naturally produces; nor is taken upon any real arguments, or relation thereof to other acknowledged truths; and yet, notwithstanding, appears as true, not by a manifestation, but by an attestation of the truth, and moves us to assent, not of itself, but in virtue of a testimony given to it—that is said to be properly credible; and an assent to this is the proper notion of belief or faith.

A judicious writer (Price's Review of the principal questions in Morals, p. 158.) is of opinion, that all the general grounds of belief or assent, may be comprehended under the three following heads: viz. 1st. Immediate conceptions (which see), or feeling; whence we acquire the knowledge of our own existence, and of the several operations, passions, and sensations of our own minds; and to this head may be referred the information we derive from the powers of recollection and memory; 2dly, Intuition (which see); and to this we owe our belief of all self-evident truths, our ideas of the general, abstract affections and relations of things, our moral ideas, and whatsoever else we discover, without making use of any process of reasoning; and 3dly, Argumentation or Induction. See these articles. See also Assent and Faith.

BELIENE, in Geography, a village of Egypt, depending on the grand febek, and agreeably situated between two canals; 12 miles south of Girgë.

BELIEVERS, in Ecclesiastical History, an appellation given towards the close of the first century to those Christians who had been admitted into the church by baptism, and instructed in all the mysteries of religion: they had also access to all the parts of divine worship, and were authorized to vote in the ecclesiastical assemblies. They were thus called in contradistinction to the catechumens, who had not been baptized, and were debarred from these privileges.

BELILLA, in Botany. See Mussenda.

BELIM, in Geography. See Belen and Para.

BELIN, a town of France, in the department of Gironde, and chief place of a canton in the district of Bordeaux. The place contains 1212, and the cantons 7008 inhabitants; the territory includes 585 kilometres and 6 communes.

BELINA, a town of European Turkey, in Bofnia, about midway between Banjaluka and Belgrade.

BELION, a name given to a river of Lusitania, called also Limia, Limus, Lethe, and the river Oblivion, in Ancient Geography, was the boundary of the expedition of Deinimus Bratus. His followers, when they arrived at this river, refused, from motives of superstition, to cross it; upon which he snatched an ensign out of the hand of the bearer, and passed over, by which his army was encouraged to follow (Livy). He was the first Roman who ever proceeded so far, and ventured to cross. The appellation, according to Strabo, took its rise from a fedition that occurred in a military expedition between the Celtici and Taurduli after crossing this river, in which the general was slain, so that they remained dispersed there; and from this circumstance it was called the river of Lethe, or Oblivion. (Cellarius.) It is now called "El Lima," and runs westward into the Atlantic, to the south of the Minho.

BELISAMA, or Belizana, in Mythology, a name given by the Gauls to their Minerva, or to the goddess who was the inventor of the arts. She was represented with a helmet adorned with a plume, clothed in a tunic, without sleeves, and covered with a mantle called "peplum." Her attitude, with her head leaning on her right hand, was that of a person in a profound reverie. Human victims were sacrificed on her altar.

BELISAMAE. See Belasama.

BELISARIUS, in Biographies, the Africanus of New Rome, was born, and probably educated, among the Thracian peasants; and advanced from the humble station of one of the private guards of Julianus, then general of the Roman forces, and afterwards emperor, in which he had served with valour and reputation, to distinguished military command. Under the new title of General of the Eait, he encountered the Persian army near the fortresses of Dara, on the confines of Persia, with a much inferior force, both as to the number and quality of his troops, and obtained a decisive victory. In the next campaign, A.D. 530, he advanced from Dara to the relief of Syria, which was invaded by the Persians; and though he was defeated in an engagement which the impatience of his troops had precipitated, he saved his army from the consequences of their own rashness. The victory of the Persian commander was so far purchased, that it was followed by a peace

Belisarius, on his return to Constantinople, rendered efficient service to the emperor Julianus, by quelling a dangerous sedition. In 533, the supreme command of the fleet and army, destined for the African war, was delegated to Belisarius, with an unlimited power of acting according to his own discretion, as if the emperor himself were present. After a voyage of three months, in which he had repeated opportunities of exercising his talents as a commander, he disembarked his troops on the African coast. Immediately upon their landing an inulence of pillage occurred, which gave him occasion for inculcating the maxims of justice, moderation, and genuine policy. "When I first acceded the commission of subduing Africa, I depended much less," said the general, "on the numbers, or even the bravery of my troops, than upon the friendly disposition of the natives, and their immortal hatred to the Vandals. You alone can deprive me of this hope; if you continue to extort by rapine, what might be purchased for a little money, such acts of violence will reconcile these implacable enemies, and unite them in a just and holy league against the invaders of their country." His exhortations, accompanied by rigid discipline, produced the most salutary effect. The inhabitants, instead of defearing their houses, or hiding their corn, supplied the Romans with a fair and liberal market; the civil officers of the province continued to exercise their functions in the name of Julianus; and the clergy, from motives of confidence and interest, affidavitiously laboured to promote the cause of a catholic emperor. In his progress towards Carthage, he defeated, with great slaughter, the formidable army collected by Gelimer, and entrapped to the conduct of his brother and nephew, and reduced the king himself to the necessity of seeking his safety by a precipitate flight.

Belisarius, having taken possession of the city, restored, with incredible dispatch, its walls and ditches, which the heedlessness and indolence of the Vandals had suffered to decay. The defeat of Zano, the brother of Gelimer, and the pugilistic flight of the king himself, terminated the conquest of Africa in the manner already related under the article Africa, which see. Belisarius, on his return to Constantinople in 534, obtained a splendid triumph, and was created sole consul for the ensuing year. The day of his inauguration resembled the pomp of a second triumph; his curule
The next object to which the attention of Belifarius was directed was that of terminating the dominion of the Ostrogoths in Italy. With this view he invaded Sicily A.D. 537, and having had siege to Palermo, which was soon reduced, and which was the only place where he met with any resistance, he soon after entered Syracuse in triumph.

In the spring of the following year he was diverted from the prosecution of his designs by a dangerous revolt of the African forces, which demurred his presence at Catthage. By a easy victory he would have reduced the peace of Africa; if he had not been hastily recalled to Sicily, for the purpose of appeasing a faction which had broken out in his own camp. Having effected this object, and sufficiently garrisoned Palermo and Syracuse, he embarked his troops at Messinia, A.D. 537, and landed them, without resistance, on the opposite shores of Rhegium. From Rhegium to Naples, his fleet and army, almost always in view of each other, advanced nearly 500 miles along the coast; and he received the submission of the inhabitants of the several countries of Bruttium, Lucania, and Campania, through which he passed. The capture of Naples, to which he had long set his heart, was, for some time delayed; and he had recourse himself to the defence of abandoned isles, that he might march, before the winter set in, against Rome and the Gothic king. But in the moment of anxious suspense a signal event occurred. Intimations of the death of the chasal of an aqueduct, a file of which led into the heart of the city, who gained admission to his companions, by whom the walls were formed on solid rock, and the gates burst open. Belifarius, having succeeded in this enterprise, restrained the cruelty and ferocity of the Huns; and, for this purpose, he appeared alone in the streets and churches of Naples, and exerted himself in moderating the calamities of the inhabitants. "The gold and silver," he repeatedly exclaimed, "are the just rewards of your valor. But spare the inhabitants; they are Christians, they are suppliants, they are your fellow subjects. Rejoin the children to their parents, the wives to their husbands; and shew them, by your generosity, of what obedience they have obstinately deprived themselves." The city was thus saved by the virtue and authority of the conqueror.

From Naples, Belifarius proceeded to Rome; which, on his approach, was evacuated by the Gothic garrisons; and which, after sixty years' servitude, was delivered from the yokes of the Barbarians, and surrendered, without opposition, Dec. 10, A.D. 536. The Gothic chief, who had himself a trophy of victory, was sent with the keys of Rome to the throne of the emperor Julianus. In the following year, 537, Vergi, who had been elected by the Gothic the successor of the feeble and deposed Theodatus, collected an army of Barbarians, and attempted to recover the capital. But on the approach of the Barbarians, Belifarius fell back to survey their camp; but being surrounded by the enemy, he extricated himself by vigorous exertions of strength and valour. When the whole army of the Gothic, having passed the Tiber, forced the siege of the city, which was continued above a year, before their final departure. Belifarius, led by his wife Antonia, his constant companion in every expedition, made many efforts for the relief of its distressed inhabitants, and for repulsing the besiegers, which at length, in concurrence with a force sent by the emperor, were crowned with success; so that Rome was relieved from the hostile attacks of the Gothic army, which raised the siege, and, after attempting the recovery of Rimini, took shelter within the walls of Ravenna. Upon the arrival of an army from Constantinople, under the command of Julianus, a diffusion arose between the two generals, whose respective authority was not accurately defined; but Belifarius was appointed, by the emperor's special commission, to the supreme command. He incurred, however, considerable offence by the hasty execution of Constanus, governor of Spoleto, who had committed an act of robbery, and in consequence of this measure, the two armies separated, and Narses was exercised by the leader of the discontented faction to affirme an independent and supreme command. Belifarius, by his prudence and perseverance, regained his reputation and influence, and procured the recall of Narses, and the establishment of military subordination. In the interval of discord, the Goths, aided by the Franks, captured Milan, with circumstances of aggravated cruelty. In 539, the destruction of Milan was succeeded by the invasion of Theodbert of Auvergia, the most powerful and warlike of the Merovingian kings, who, besides the succour which he afforded to the Goths, invaded the plains of Italy with an army of 100,000 barbarians, and marched his way by road and by water. The formidable of his conquering army, diminished by famine and disease, at length reduced Theodbert to listen with respect to the mild admonitions of Belifarius; who, as soon as he was delivered from his foreign and domestic enemies, formerly employed his forces in the final reduction of Italy. Having reduced Ollone and Faleria, he proceeded to invade Ravenna; and whilst he was engaged in the blockades of this city, he received from Julianus a treaty of peace, which he had actually signed without deigning to ask his counsel and concurrence. By this disgraceful and precarious treaty, Italy and the Gothic treasures were divided, and the provinces beyond the Po were left with the legal title to Vitiges. Belifarius rejected the treaty of partition, and declared his firm resolution of leading Vitiges in chains to the feet of Julianus. Upon this the Goths retired with doubt and dismay, and perceiving their own defeat and perils estate, offered their arms, their treasures, and the fortifications of Ravenna to Belifarius, if he would do him the authority of a master, accept their choice, and assume, as he had deserved, the kingdom of Italy. The Roman general, seeing to acquiesce in their proposal, flippulated the surrender of Ravenna at an appointed day; and in December 540, he entered the city without opposition, secured the royal treasures, and placed Vitiges under a guard in the royal palace. The fulmination of the capital was followed by that of the towns and villages in Italy; and the independent Goths, who still remained in arms at Aries and Verona, were ambitious only to become the subjects of Belifarius. But his inflexible loyalty rejected, except as the inhabitants of Julianus, their oath of allegiance; nor was he offended by the reproach of their deportment, till he rather chose to be a flame than a king. Julianus, hereupon, being to the suggestion of envy and jealousy, recalled Belifarius, who obeyed the summons, and departed for Constantinople, carrying with him the treasures of Ravenna, and the person of Vitiges, his wife, and chief sides. The emperor received him with seeming cordiality, but without granting him the well earned honours of a second triumph. Belifarius, however, was the object of universal adoration, and applause among the people; and by the number of soldiers in his private pay, and the attachment of the army, whose affection he secured by his justice and liberality, he
might well be reckoned the second person in the empire. To the husbandman he was endeared by the peace and plenty to which they enjoyed under the shadow of his standard. Such had been the rigid discipline of his camp, that the country, instead of being injured by the march of the Roman legions, had been enriched by them; and not so much as an apple was gathered from a tree, nor could a path be traced in the corn fields. As to his personal conduct, he was sober and chaste to a great degree, that, in the licence of a military life, none could boast that they had seen him intoxicated with wine, and that he was never suspected of violating the laws of conjugal fidelity. "The spectator and historian of his exploits," says Gibbon, "has observed, that amidst the perils of war, he was daring without rashness, prudent without fear, slow or rapid according to the exigencies of the moment; that in the deepest distress he was animated by real or apparent hope; but that he was modest and humble in the most prosperous fortune. By these virtues he exalted or excelled the ancient masters of the military art. Victory, by sea and land, attended his arms. He subdued Africa, Italy, and the adjacent islands; led away captives the successors of Generica and Theodosius; killed Constan tinople with the spoils of their palaces; and in the space of six years recovered half the provinces of the western empire. In his fame and merit, in wealth and power, he remained, without a rival, the heir of the Roman subjects; the rose of envy could only magnify his dangerous importance; and the emperor might applaud his own discerning spirit, which had discovered and ratified the genius of Belisarius." Nevertheless, the fame, and even the virtue of Belisarius, were polluted by the guilt and cruelty of his wife, Antonina. This proud woman was the daughter of a theatrical professor; and in the various situations of the fortune of her parents, she became the companion, the enemy, the servant, and the favourite of the empress Theodora. Before her marriage with Belisarius, she had one husband and many lovers; and after their conjugal union, she contrived to gratify her luxurious passions, and to impose on the credulity of her husband, whom she dissembled, and whom, by her influence she mitigated to transactions that fix an indelible stain on his memory.

When Syria was invaded by Chofroes king of Persia, in the year 540, and Antioch, its rich capital, destroyed, Belisarius, the conqueror of Italy, was appointed to the defence of the east. Accordingly, in the year 541, he encamped beyond the Euphrates, within six miles of Nisibis, in order to restrain the progress of the Persian monarch on the coast of the Euxine. Having succeeded, without the support which he had reason to expect, in forcing Chofroes to return with loss and precipitation, he was recalled, at the close of the campaign, to Constantinople, by an ungrateful court; but the dangers of the ensuing spring restored his confidence and command; and the hero, almost alone, was dispatched with the speed of post-heres, to repel by his name and presence the invasion of Syria. On the banks of the Euphrates his firm attitude restrained Chofroes from advancing towards Palestine, and compelled him to repulse the river: thus accomplishing his purpose by a safe and bloodless victory, more glorious than his African and Gothic triumphs, in which neither fortune, nor the valour of his soldiers, can subtract any part of the general's renown. But the danger threatened to Italy by the rapid conquests of Totila, who had been advanced to the Gothic throne, required the presence of Belisarius; and accordingly he was again recalled from the east, and in 544, he arrived at the port of Ravenna with an inconsiderable number of ill-provided recruits. Thus supported, he was able to impede the progress of Totila, and to prevent his laying siege even to Rome. When the city was reduced to extreme distress by the want of provisions, the supply of which had been long obstructed by the besieging army, Belisarius made a bold attempt for its relief. But his enterprise for this purpose having failed, Rome was obliged to submit to the Gothic yoke; and Belisarius could only prevail by interposing to prevent its threatened destruction. Totila, however, pillaged the city, and removed many of its inhabitants, marched into the south of Italy; upon which Belisarius took possession of it, and hastily fortified himself within its circuit; so that he was able thrice to repulse the Gothic army which Totila brought against it. But whilst he was engaged in its defence, he was commanded by the emperor to leave a sufficient garrison at Rome, and to transport himself into Lucania, in order to suppress a revolt which had taken place in that province. In this warfare he was basely vanquished by the delay, disobedience, and cowardice of his officers; and having reposed in his winter-quarters at Crotona, he was obliged by the rapid march of the Goths to make his escape to the coast of Sicily. At length Antonina, who had been sent to Constantinople to solicit succours, obtained, after the death of the empress, permission for Belisarius to return. Accordingly, after failing to deliver Italy from the Goths, and wandering like a fugitive along the coast, without daring to march into the country, or to accept the bold and repeated challenge of Totila, he was recalled in September 548. The subsequent success of Narses in recovering Italy, threw a shade over the military reputation of Belisarius; though about 10 years afterwards he distinguished himself by facing the capital from an invasion of the Bulgarians, who had advanced to its long walls, about 40 miles from the city, and occasionally an universal alarmed. The enemy were put to flight by the military veteran at the head of aLAND AMIRAL; though it was necessary to purchase their return into their own country by a heavy ransom. This was the last exploit of Belisarius; and his remaining days were doomed to misfortune and disgrace. The jealousy of the emperor, increasing with his years, led him to dispute Belisarius of being concerned in a conspiracy against his crown and his life; and the veteran general, after thirty years' service, and on incompetent testimony, was judged guilty, Dec. 5, A.D. 563. His life, indeed, was spared, but his fortunes were fleeced, and he was guarded for several months, as a prisoner, in his own house. At length, July 15, A.D. 564, his innocence was acknowledged; his freedom and honour were restored; and death, which might have been hastened by resentment and grief, removed him from the world about eight months after his deliverance, March 13, A.D. 565. "The name of Belisarius," says Gibbon, "can never die; but in the funeral, the monuments, the statues, faithfully due to his memory, I only read, that his treaties, the spoils of the Goths and Vandals, were immediately confiscated by the emperor. Some decent portion, however, was reserved for the use of his widow; and as Antonina had run so repent, she devoted the last remains of her life and fortune to the foundation of a convent. Such is the simple and genuine narrative of the fall of Belisarius and the ingratitude of Julian. That he was deprived of his eyes, and reduced by envy to beg his bread, Givemoney to Belisarius the general, is a fiction of later times, which has obtained credit, or rather favour, as a strange example of the vice of "flavus fortunus."

The source of this ill-fated may have been derived from a miscellaneous work of the twelfth century, the Chilidns of John Tzetzes, a monk, who relates the blindfolds and beggary of Belisarius in vulgar or political verse. (Vid. Corp. Poet. Graec. tom. ii. p. 311.)
B. F. L.

This moral or pathetic tale was imported into Italy with the fragments and manuscripts of Greece; repeated before the end of the sixteenth century by Cimabue, Pietro da, and Visentinius; attacked by Alciat for the honour of the law, and defended by Baronius for the honour of the church. Yet Tracez himself, in other chronicles, that Belarius did not write his nigh, and that he conceived his history and fortune. Gibbon's Hist. Decl. and Fall of the Rom. Emp., vol. i.

The theme is the will. Raphael, at Rome, in a sitting posture, with an open hand, holding a glass, is evidently addressed to Belarius, but it may be added with great propriety to Augustus, represented under the character of a magistrate, propitiating the genius of Nemi. Sueetzaix, in Aug. 99, for in Rome, that on a certain day every year, he handed himself to the condition of a large, recurring, heavy hand, and soliciting thus from the people. Vide Voltaire, tom. iv. p. 265.

BELÉSIO, or Belezia Geography, a town of Spain, near its frontier of Andalusia.

BELITZ, a capital of Spain, according to Pliny.

BELIZ, in Germany, a town of Germany, in the province of Brandenburg, in the circle of Zalzen's Consistory, on both sides of the Nei, and 300 miles south of Berlin, and 12 miles west of Petzam.

BELITZKY, a town and district of the Russian empire, in the government of Mohileh, stated on a rivulet falling into the sea.

BELKANI, a town of Achaia, in the province of Argolida, in the circle of Zalzen's Consistory, near the town of Nei, and 34 miles south of Dalmatia, and 44 miles south of Cairo.

BELKOVA, a river of Russia, in the government of Archangel, which runs into the Frozen sea. N. lat. 69° 30'. E. long. 53° 34'.

BELLE, a popular machine, ranked by musicians among the numbers of musical instruments of percussion. The noise of bells is altogether melody; but the pleasure arising from it consists in the variety of interchanges, and the various successions and general predominance of the harmonies in the sounds produced.

The parts of a bell are the body or clavel, the clapper or handle, and the ear or casing, when by it is hung to a large bar of wood.—Its usual material is a kind of compound lead, called bell-metal. The thickness of its edges is usually 1/2 of its diameter, and its height twelve times its thickness. The bell-founders have a dross, or baffle, in which they measure the fret, or level, weight, and form of their bells. For the method of calling bells, see F. H. B. N. 2.

The sound of a bell arises from a vibratory motion of the parts thereof, much like that of a musical chord. The stroke of the clapper, it will be observed, changes the shape of the body, and, of round to oval; but the metal is but a great deal of elasticity, that part of which the clapper drives fast into the sound waves by backward, and this even faster than to the other; but so for the two points of the clapper. In the large cast, the damage, so to speak, of the clapper. Thus the clapper is the source of the bell, and the other acoustic changes of the air, and by means of that it makes sound to the air, in which it sounds.

M. Percussion must, that the sound of the large bell chord is a compound of the sound of the local parts thereof; so that where the parts are homogeneous, and the dimensions of the figure uniform, there is such a perfect mixture of all these sounds, as constitutes one uniform, smooth sound: and the contrary circumstances produce harshness. This he proves from the bell's differing in tone according to the part you strike, and yet strike it at any where, there is a mixture of all the parts. He therefore considers bells as composed of an infinite number of rings; which, according to their different dimensions, have different tones, as chords of different lengths have; and when struck, the vibrations of the parts immediately fuse, determine the tone, being supported by a sufficient number of constant tones in the other parts. Mr. Hawkins, and others, have found by experiments, that the sound of a bell struck under water, is a fourth deeper than in the air; though Memorius says, it is of the same pitch in both elements. This water has treated largely of the different metals of which bells are formed, of their figure, cadence, and degrees of sonority, as they respect each other in a given form.

Bells are to be heard further, placed on plains, than on hills; and still farther, in valleys, than on plains; the depth of which it will not be difficult to assign, if it is considered, that the higher the sonorous body is, the more air; and, consequently, the less impulse it receives, and the less power it has to convey it to a distance. There is a curious observation in a paper of M. Reaumur's in the Memoirs of the Paris Academy, relating to the shape most proper for bells, to give them the loudest and sharpest sound. He observes, that as pots, and other vessels more immediately necessary for the service of life, were doublets made before bells, it probably happened, that the observing these vessels to have a sound when struck, gave occasion to make bells, intended only for sound, in that form: but that it does not appear that this is the most eligible figure; for lead, a metal which is, in its common state, not at all sonorous, yet becomes greatly fo on being cast into a particular form, and that very different from the common shape of bells. In melting lead for the common occasions of casting in small quantities, it is usually done in an iron ladle; and as the whole is seldom poured out, the remainder, which falls to the bottom of the ladle, comes into a mass of the shape of that bottom. This is consequently a segment of a figure, thickened in the middle, and thinner towards the edges: nor is the ladle any necessary part of the operation, since, if a mass of lead be cast in that form in a mould of earth or sand, in any of these cases it is found to be very sonorous. Now, if this shape alone can give sound to a metal, which in other forms is perfectly mute, how much more must it unnecessarily give it to other metals naturally sonorous in whatever form. It should seem that bells would much better perform their office in this than any other form, and that it must particularly be a thing of great advantage to the small bell, of common hound-chocks, which are required to have a shrill note, and yet are not allowed any great size.

M. Reaumur very judiciously observes, that if our forefathers had opportunities of being acquainted with the found of metals, in this plan, we should probably have had all our bells at present of this form. Mem. Acad. Par. 1726.

With regard to the origin of bells, that of a bell for an any uncertain; but the idea of a large bell, hung by ropes, was introduced at a much later period. Among the Jews, it was ordained by Moses, that the priests of the blue robe, which was worn by the high and lesser priests, should be adorned with their necklaces and gold bells, according to equal numbers. Ex. xxxiv. 22, 23. The king of Persia, to have heard the sound of the royal seal, like that of the bell, in process with princes, and gold bells, the Arabian race have worn on their legs a hollow gold ring, being
with small flints, which found like bells, when they walk; and these, with several appurtenances, give notice that the mithreps of the house is passing, so that the servants of the family may behave with respect, and strangers may retire to avoid seeing the person who advances. Calmet supposes, that it was with some such design of giving notice that these little bells at the hem of his robe; and it was also a kind of public notice that he was about to enter into the sanctuary. In the court of the king of Persia, no one entered the apartments without some warning; and thus the priest, when he entered the sanctuary, desired permission to enter by the sound of his bells, and in so doing he escaped the punishment of death annexed to an indecent intrusion. The prophet Zachary (ch. xiv. 20.) speaks of the bells of the horses, which were probably hung to the bridles or foreheads of war-horses, that they might thus be accustomed to noise. Calmet.

Among the Greeks, those who went the nightly watch rounds in camps or garrisons, carried with them a little bell, which they rang at each century-box to keep the soldiers appointed to watch awake. A bell-man also walked in funeral processions, at a distance before the corpse, not only to keep off the crowd, but to advertise the flamen dialis to keep out of the way, lest he should be polluted by the fight, or by the funeral music. The priest of Proserpine at Athens, called "herophantus," rung a bell to call the people to sacrifice. The hour of bathing, at Rome, was announced by the sound of a bell, and hence it has been supposed they were used to mark the hours of devotion, and funerary people to church. Servants in the houses of great men were called up in a morning by the sound of bells. Zo-

naran informs us, that bells were hung with whips on the triumphal chariots of their victorious generals, in order to remind them that they were still amenable to public justice. Bells were affixed to the necks of criminals going to execution, to warn persons to avoid so ill an omen as the sight of the executioner or condemned criminal, who was devoted and about to be sacrificed to the "di manes." To this superflition some persons have attributed the custom in England of ringing parish bells, while a malefactor is on his way to the gallows; though others have generally supposed it was intended as a signal to all who heard it, admonishing them to pray for the soulful fasting. Phaedrus mentions bells annexed to the necks of brutes: "Cella cervica eremium, clarumque, collo jacans tintinnabulum." Taking these bells away was confined by the civil law to he theft; and if the beast was thus lost, the person who took away the bells was to make satisfaction. Sempis had them tied about their necks, to frighten away wolves, or rather by way of amulet, or to direct herds where to find their flocks; and since the practice of blessing them has been introduced, they have been thought to preserve animals from epidemic disorders.

The uses of bells are summed up in the Latin difhich:

"Laudo Deum verum, plebem voco, congrego clerum, Defunctorum ploro, petlem fungo, festa decoro."

To the same purpose is the following inscription on bells, mentioned by Weever, in his "Funeral Monuments," p. 122.

"Funera plango, fulgura frango, fabbata pango, Excito lentos, diffusos ventos, pace cruentos."

The first bells are said to have been made about the year 400, at Nola, in Campania, whereof St. Paulinus was made bishop in 409; at least it is asserted, he was the first who brought them into use in the church. Notice here this expression of the Romanists that bells were "firma ligma," to call the congregation together; no bells being allowed by government to a prescribed set. Hence, it is added, they had their Latin names, Nola, first used by Quintilian, and

Campana, a term which was adopted in the time of St. Jerom. But others say, they take these names, not from being invented in Campania, but because it was here the manner of hanging and balancing them in flections, now in use, was first practised; at least, that they were hung in a model of a fort of balance invented or used in Campania. For in Latin writers we find Campania flutes, for a flett-yard; and in the Greek καμπαναί, for ponderam, to weigh. At first they were called fanta; and hence are derived a tofant, or tofif.

Polydore Virgil ascribes the invention of church bells to pope Sabinius, St. Gregory's successor; but this is a mistake: for St. Jerom, contemporary with Paulinus, makes mention of one. Pope Sabinius did not invent bells; but he was the first who appointed the canonical hours to be distinguished by them.

We even find mention made of bells in Ovid, Titullus, Martial, Statius, Manlius, and the Greek authors, under the appellations of tintinnabula, and sounding brays. Suetonius, Dion, Strabo, Polybius, Josephus, and others, mention them under the names of peltae, tintinnabula, aramentum, crotalum, sistrum, &c. But these appear to have been no more than babbles, and not like the huge bells in use among us.

Hieronymus Magnus, who has a treatise on bells (written when in chains in Turkey, and which is accounted very remarkable, purely from his memory, without the assistance of any book), makes large bells a modern invention. Indeed, we do not hear of any before the fifth century, when they were applied to ecclesiastical purposes in some of the monastic societies of Caledonia, as they were in those of Northumbria before the conclusion of the 7th century; and they seem to have been used from the first erection of parish churches in this kingdom. In 670, we are told, Lupus, bishop of Orleans, being at Sens, then besieged by the army of Clotharius, frightened away the besiegers by ringing the bells of St. Stephen's. The first large bells in England are mentioned by Bede, towards the latter end of that century, or about the year 670. They seem to have been pretty common in the year 816. Ingulphus mentions that Turkeutus, abbot of Crowland, who died about the year 870, gave a great bell to the church of that abbey, which he named Guthlac, and afterwards fixes others, all which rang together; and not long after this time, Kinfeus, archbishop of York, built a tower of stone to the church of St. John at Beverly, and placed in it two great bells, and at the same time provided that other churches in his diocese should be furnished with bells, J. Stubbs. Act. Pont. Ebor. fol. 1700. Mention is also made by St. Aldhelm, and William of Malmsbury, of bells given by St. Dunstan to the churches in the weft. See Spelman. Glofl. voc. Campana; and Bingham's Aut. Chrif. Church, book viii. ch. vii. § 15.

The Greeks are usually said to have been unacquainted with bells till the ninth century, or about the year 865; when their construction was first taught them by a Venetian.

Indeed it is not true, that the use of bells was entirely unknown in the ancient eastern churches, and that they called the people to church, as at present, with wooden mallets. Leo Allatius, in his Differtation on the Greek temples, proves the contrary from several ancient writers. It is his opinion, that bells first began to be diffused among them, after the taking of Constantinople by the Turks; who, it seems, prohibited them, left their found should disturb the repose of souls, which, according to them, wandered in the paradise of souls. He adds, that they still retain the use of bells in places remote from the intercourse of the Turks; particularly, very ancient ones in mount Athos. F. Simon thinks the Turks rather prohibited the Chalians the use of bells out of
of political than religious reasons; inasmuch as the ringing of bells might serve as a signal for the execution of revolts &c. The city of Bourdeaux was deprived of its bells for rebellion; and when it was offered to have them restored, the people refused it, after having tasted the ease and convenience of being freed "from the constant din and jangling of bells."

Matthew Paris observes, that anciently the use of bells was prohibited in the time of mourning; though, at present, they make one of the principal ceremonies of mourning. Mabillon adds, that it was an ancient custom to ring the bells for persons about to expire, to advertise the people to pray for them; whence our pealing-bells. The pealing-bell anciently served two purposes: one of which was engaging the prayers of all good people for departing souls; and the other was, driving away the evil spirits which haunted the bed and house, and which were ready to seize their prey, or to terrify, and molest the soul in its passage; but by the ringing of this bell, it was said they were kept at a distance. To this circumstance we may probably ascribe the high price demanded for tolling the largest bell of the church; which being louder, and heard at a greater distance, might keep these evil spirits more remote, and also procure for the dying man a greater number of prayers.

Lobineau observes, that the custom of ringing bells at the approach of thunder is of some antiquity; but that the design was not so much to shake the air, and so dissipate the thunder, as to call the people to church, to pray that the parish might be preserved from mischief by it.

Whatever occasion some cathedrals may have given for the reproach, that they attribute to bells the power of driving away demons, and dispelling storms; it is certain the ancient canons of the church only ascribe this power very remotely to bells. Their meaning seems to be this: Satan bears and flies from the bells, because he knows that bells summoned good people to church to pray, and they dreaded their prayers. It was therefore to prayer, occasioned by the ringing of bells, and not to the bells, that such good effects were ascribed.

The custom of churlish noise or bleating bells is very ancient. The charge of baptizing bells, alleged by protestants against the Roman Catholics, has been denied by the latter; but they allow that they bells with certain ceremonies, as they do all other church utensils; and that one of the ceremonies is the giving of a name to the bell, in order to distinguish it from others, or in honour of some saint. It seems reasonable, therefore, to acquit them of the blame of prostituting baptism in this cause, and to charge them merely with consecration and benediction. Before bells were hung, they were washed, croosed, blessed, and named by the bishop. This is what some protestants have called baptizing of them; but others say, it might be denominated the benediction of them, resembling the benediction of trumpets among the Romans. Cardinal Bona observes (Rec. Liturg. t. ii. c. 22.), that the name of some saint is given to a bell at the time of its consecration, that the people may think themselves furnished to divine service by the voice of the saint whose name the bell bears. Some say that this custom was introduced by pope John XIII., who occupied the pontificate from 955 to 972, and who first consecrated a bell in the Lateran church, and gave it the name of John the Baptist. But it is evidently of an older standing; there being an express prohibition of the practice in a capitular of Charlemagne in 789: "Ut cloax non baptizetur," See Huppinian de Origine Templores, p. 113, where there is a particular account of all the religious ceremonies practiced about bells. See Dr. Franklin's Observations on consecrated Bells, and the Form in consecrating them, Experiments, Observations, &c. p. 487, ed. 1769.

Nanking, a city of China, was anciently famous for the largeness of its bells; but the enormous weight having brought down the tower in which they hung, the whole building fell to ruin, and the bells have ever since been disregarded. One of these bells is nearly twelve English feet high, the diameter seven and a half, and its circumference twenty-three; its figure almost cylindric, except for a swelling in the middle, and the thickness of the metal about the edges, seven inches. From the dimensions of this bell, its weight is computed at 50,000 pounds, which is more than double the weight of that at Erfurt, said by father Kircher to be the greatest bell in the world. These bells were cast by the first emperor of the preceding dynasty, above three hundred years ago. They have each their name, the larger tehoni, the eater ch, the sleepier shonf, the will s. Latelle Compte adds, that there are seven other bells in Pekin, cast in the reign of Yonou, each of which weighs 120,000 pounds.

But the sounds of these bells are very poor; being struck with a wooden instead of an iron clapper.

The Egyptians have none but wooden bells, except one brought by the Franks into the monastery of St. Anthony.

In the churches of Ruflia their bells are numerous, and distinguished by their enormous size. They are hung, particularly at Mofcow, in belfreys or towers detached from the churches, with guilts or silver cupolas or crosses; and they do not living like our bells, but are fixed immovably to the beams, and rung by a rope tied to the clapper, and pulled sideways. One of these bells in the belfrey of St. Ivan church at Mofcow, weight 127,836 English pounds. It has always been observed a meritorious act of religion to present a church with bells, and the pietv of the donor has been estimated by their magnitude. According to this mode of estimation, Boris Godanoff, who gave a bell of 280,000 pounds to the cathedral of Mofcow, was the most pious sovereign of Ruflia, and he was buried by the empress Anna, at white expenses; a bell was cast, weighing 432,000 pounds, which exceeds in silver seven bells in the known world. Its dimensions, as ascertained by Mr. Cox (Travels in Ruflia, vol. i. p. 332.), are as follow: the height is 19 feet, the circumference at the bottom 63 feet 11 inches, and its greatest thickness 23 inches. The beam to which this wall machine was fastened, being accidentally burst by a fire in 1737, the bell fell down, and a fragment was broken off towards the bottom, which left an aperture large enough to admit two persons abreast without flapping.

The ringing or striking of the bells, though it forms no part of divine worship, if some writers have farthered, serves, however, by the number of strokes, to inform any person without the church, what part of the religious service is beginning within it. Thus, several strokes are struck just before the mass; and this is called "blag owes," i.e. the agreeable sound, as a summons to the praises of God. Before the commencement of the liturgy, it sounds twice; and in the middle of it, a few strokes are given to the bell, to let the people without know that the hymn to the holy virgin is now beginning to be sung. All persons, on hearing this throw aside their work, bow, and cast themselves, repeating in the verse then singing in the church. In the same manner is regulated the number of strokes at the several periods of the vespers and the matins. On some holidays they are sounded through the whole day. Tucko's Hist. of Ruflia, vol, i, p. 128.

The same writer also informs us, that ringing the bells on church and court holidays, is a species of exercise of which the Ruflians are very fond; but they produce nothing like harmony from them. The sole excellence consists in striking the clapper the fastest.

For further particulars relating to bells, see Changes in a given
a given number of bells, Tintinnologia, Carillons, and Ring.

Bell Bay, in Geography, a harbour on the south-west coast of East Greenland, to the north of Horn Sound.

Bell Sound, is situated on the west coast of Spitzbergen, in the interior. N. lat. 75° 12'. E. long. 12° 43'.

Bell, bearing the, See Racing.

Bell, fountory of. See Foundry.

Bell, diving. See Diving.

Bells, electrical, are used in a variety of entertaining experiments by electricians. The apparatus, which is originally of German invention, consists of three small bells suspended from a narrow plate of metal (Plate, Electricity,) the two outermost bells, and that in the middle, from which a chain hangs to the floor, by a silk cord. Two wooden knobs of braids are also hung by silk strings, one on each side of the bell in the middle, which serve for clappers. When this apparatus is connected with an electrised conductor, the outermost bells suspended by the chains will be charged, attract the clappers, and be fricte by them. The clappers becoming electrified likewise, will be repelled by their bells, and attracted by the middle bell; and discharge themselves upon it by means of the chain extending to the floor. After this, they will be again attracted by the outermost bells, and thus, by striking the bells alternately, occasion a ringing, which may be continued at pleasure. Flashes of light will be seen in the dark between the bells and the clappers; and if the electrification be strong, the discharge will be made without actual contact, and the ringing will cease. An apparatus of this kind, connected with one of the conductors that are erected for securing buildings from lightning, will serve to give notice of the approach and passage of an electrical cloud.

Bell-glafls, in Chemistry, a convenient vessel for many chemical operations, particularly upon gaseous bodies. It has the advantage of not being easily overthrown, and is readily manageable by the knob of glass at the top. When used, it is always inverted or standing with the open end downwards. See Plates in Chemistry.

Chemical bells are a sort of receptacles chiefly used in preparing the oil or spirit of camphor, for gathering and condensing fumes into a liquor.

Bell, in Building, is used to denote the body of the Corinthian and Composite capital, by reason of its resemblance to the figure of a bell inverted. In this sense, bell is the same with what we call bell-shaped or tambour, sometimes also corbel. The neck of the bell is always to be even and perpendicular with the bottom of the fluting of the column.

Bell flower, in Botany. See Campanula.

Bell, hair. See Hyacinth.

Bell-metal, an important alloy, composed principally of copper and zinc. See Copper.

Bell, a name given by some of the early writers on microscopical discoveries, to creatures of the Hydra genus. The bodies of these animals are shaped like bells, and they have very long and slender tails, by which they fling themselves to the roots of little plants. They are usually found in great numbers together, in a sort of clusters or bunches; and all of the same bunch have always the same motion, very frequently contracting themselves, and afterwards expanding all together to the full length of their tails. They usually contract instantaneously; but are more flow in the expanding themselves again. Baker's Microf. p. 96. See Hydra.

Bell-myrtus. See Botany, a name given by some authors to the plant called hama myrtus, and moch-foed.

Bell-pepper. See Capsicum.

Bell-polype, in Zoology, is the name applied to one particular species, the extremities of whose branches resemble bells, and which is now called Percula off Umbellaris.

Bell-weed, an English name used by some authors for the Jacca nigra, or common knapweed, called also by many English writers Mustard.

BELLA, STEFANO DE, in Biography, an eminent engraver, was born at Florence in 1615, and after having been for some time employed in the studio of his father, who was a goldsmith, applied to the study of engraving, and became the Disciple of Santi Chiusi. At first he imitated the manner of Cellot, who had been a disciple of the same master; but acquiring a facility in handling the point, he adopted a manner of his own, which is said to have first shewed, in freedom and spirit, that of Cellot. At Paris, whither he removed in 1632, he formed an acquaintance with Israel Silvestre, and was much employed by Henriette, the uncle of Silvestre. Upon his return to Florence, he obtained a pension from the grand duke, and was appointed to instruct the prince Colonna, his son, in the art of design. But being habitually subject to violent pains in the head, they at length terminated his life in 1664. The free and masterly etchings of this excellent artist are well known, and his distinguishing excellence consists in the freedom of his point, and the lightness and elegance of his figures. He drew correctly, and with great taste; and his works display much genius and great fertility of invention. Their lightness is compensated by their fire and animation. He is said to have engraved 1400 plates; among which are, "Six Views of Livorno;" several sets of "Shipping;" "A Holy Family;" several "Madonnas;" a "View of Pount-neuf, at Paris;" "St. Prother, a fierce count; five small oval, in which is represented "Death carrying away persons of various ages;" "Death mounted on the skeleton of a horse;" "Pamphilus;" and the "Rocky," both scarce; "Animals;" "Beggars;" and various sets of "Hunting;" "Shipping;" "Landscapes;" "Ornaments," &c. Strutt.

BELLA PALLA, or TERRA PALLA, in Geography, a small hill, resembling two islands with lofty round hills, 10 leagues N. E. by N. from Cape Angelo, and 4 leagues N. N. W. from Grava island; ituate on the coast of the Morea in the Archipelago.

BELLA, in Entomology, a species of Philena (bombyx,) found in North America. The wings are yellow, with six rows of black dots; posterior wings red, with black tips. Lin. Maj. 1758, p. 507.

BELLABRE, in Geography, a town of France, in the department of the Indre, and chief place of a canton, in the district of Le Blanc. The place contains 895, and the canton 6672 inhabitants; the territory includes 300 kilometres and 11 communes.

BELLAC, a town of France, and principal place of a district, in the department of the Upper Vienne, seated on the Vineon. It derives its name from an old fortified castle, erected in the 10th century, and contains about 2500 inhabitants. The place contains 3901, and the canton 16,854 inhabitants; the territory includes 255 kilometres and 9 communes. N. lat. 46° 7'. E. long. 0° 57'.

BELLADAC, a town of Aisne, in the province of Dijon, 35 miles west of Raba.

BELLADONNA, in Botany. See Amaryllis.

BELLADONNA, a name given by the Italians to the deadly nightshade, because the ladies make a colicene of the juice, or distilled water, which they use to make their complexion fair and white. Ray.

Others derive the name from the intoxicating quality of this plant; "Quod intoxicat pulchras offendit virgines feminacita." Bosc. Comment. in Theophrast. 10, 8. See Atropa.
BELLAGA, in Entomology, Papilio Carolus, is described under the name in the Fauna Surtensis. Lin. n. 1. 278.

BELLARIUS, in Geography, a post town of America, near the centre of Hartford county in Maryland, and the chief town of the country. It contains a court-house and jail, and has but few inhabitants. Distant from Hartford 12 miles N.W. N.E. from Baltimore, 166 W. S. W. from Philadelphia.

BELLA, or Bella, a town of Italy, in the Milanese, 17 miles north of Como. It is situated at the foot of a precipice, rest from top to bottom by a chain, through which a ferry insures its way. A bridge is thrown across the chain, from which the spectator looks down into a deep gulf, and an aqueduct is constructed along the steep sides of the rock.

BELLAGUS, in Geography, a species of Papilio (Phi. rur.) described by Fries, and is Papilio Adonis, Gmel, &c.

BELLARMIN, Robert, in Geography, a cardinal of Rome, and one of the most famous ecclesiastical writers of his time, was born at Monte Pulciano, a town of Tuscany, in 1542, and entered into the Society of the Jesuits in 1562. He was ordained priest by I. L. White in 1569, and in the following year advanced to the theological chair in the University of Louvain. Having remained seven years in the Low Countries, he returned to Italy, and in 1576, began to read lectures at Rome on controversial subjects; and having been honoured by three successive popes with important commissions, he was, in 1599, nominated to the cardinalate by Clement VIII. with the following elegy: "We choose him because the church of God does not prevail in learning." In 1602, he was created archbishop of Capua, and it was reported he would have been raised to the papal see if he had not been a Jesuit. In about four years he resigned his archbishopric, and being precluded to Rome by pope Paul III. and here he continued his services to the church, till they at 1621, when he retired from the Vatican to a house of his order, in which he died the same year, at the age of 79. When he was visited in his old age by pope Gregory XV. he expressed his profound veneration for the pontiff, as Christ's vicar on earth, by kneeling him on his entrance with the words of the coronation to Christ: "I. Lord, I am not worthy that thou shouldest come under my roof." On the day of the consecration it was necessary to keep off the popes by a strong guard, as they passed on, either to should似y or to procure some relief of his garments, as he laid in a faint.

BELLARMIN. As Rome's defender, and the cardinal residing in the closing period of the 16th century, he is the subject of most of the polemical literature of the period. His name, indeed, is almost synonymous with a period of papal history, and his writings are of course the literature of that period. The work on the authority of the church is his most important work, and is, indeed, one of the most important works of the period. His other writings, though less important, are equally valuable, and include works on theology, politics, and history. Among his most important works are "A Commentary on the Psalms," "A Commentary on the Apocalypse," "A Treatise on Ecclesiastical History," "A Treatise on the Temporal Authority of the Pope," and "A Treatise on the Objections of the Popes." Some of his works, and particularly his book on the temporal authority of the pope, raised difficulties against him in his own commendation, whilst his declaration of the right of the pontiff to depose princes, caused it to be condemned by the parliament of Paris; his assertion of the direct power of the pope in temporal matters, foisted the court of Rome, that the pope, caused it to be forbidden in the Index of the Inquisition. Some princes, by excess of zeal, injured their own cause, by circulating unfounded and malignant calumny against his words, &c. Joseph Scaliger has even affirmed, that he did not believe a word of the doctrines he defended, whereas it is most probable that he inclined to superstition in fact, and to scrupulosity in practice. At his death he bequeathed one half of his wealth to the Virgin Mary, and the other half to Jesus Christ; and it is said, that he would not allow the vermon that infected his body to be molested under the plea, that these animals had no other parable than their present existence, of which it was cruel to deprive them. His right to canonization was strongly urged; and the popes were prevented from allowing his claim merely by the fear of giving offence to those foreigners who did not understand the local rights he had opposed. Gen. D. Ch. Nouv. D. dit. Hill. Mohr. Ecol. Hist. vol. iv. p. 221, &c.

BELIAS, in Geography, a small town of Portugal, in Braganza, containing about 1240 inhabitants.

BELLATOR, in Entomology, a species of Cimex (Gmelin). It is brown above, beneath yellowish; antennae black annulated with white. Gmelin. A native of Ceylon. This is Corus Bivator of Fabricius.

BELLATRIX, in Anatomy, a ruderal, glittering star of the second magnitude, in the first house of Orion.

It takes its name from Bellum, a name given to it by the ancients, from its first appearing in the heavens, and forming a part of the constellation of the first house of the signs.

BELLAY, William, in Geography, a French general, legalized himself in the service of Francis I. by his valour as a soldier, and by his talents as a negociator. He was a man of strong and forcible in his efforts for inducing some of the nobility of France to support his designs in favour of the Duke of Anjou. He was employed in several embassies to Germany for the purpose of concluding the peace of the pontiff league, and deviating their objects against the king his master's interests in punishing heretics. Bellay was eminently distinguished for his abilities in penetrative, by his boldness and resolution, into the depth of enemies; he succeeded in the French, with the best in quality of victory, and with the least in the number. From the beginning of the reign of Francis, his name became the most illustrious in France, between 1512 and 1513, he conducted the most splendid war at St. Zeno, and the most famous battle of his life. In his letters, among which the most important was a letter to the Parlement of Paris, in which he defended the right of the king to the estates, and particularly to the estate of the clergy. He was a man of great learning, and a great writer. He was the author of several works, of which the most important was "The History of the World," in which he wrote his history books, or described the events in a cursive, in a clear style. Of this Bellay, 1565, is the first, and can be trusted by variations. The style is written in a simple and lively manner, but it is somewhat partial in favour of France. Bellay
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Bellay was one of the first French writers who expressed a doubt of the miraculous facts recorded of Joan of Arc. Gen. Dict.

Bellay, John du, a cardinal, younger brother of the preceding, was born in 1492; and having made considerable proficiency in literature, was highly esteemed by Francis I. By him he was employed in several embassies, particularly in negotiating a reconciliation between Henry VIII. of England and the see of Rome; and he was advanced by him to several cardinal preferments. Bellay, in the business of king Henry, visited the pope at Rome, where he continued, and in 1535, he was made cardinal by Paul III. As soon as he received intelligence of the hostile designs of Charles V. he returned to France, and refilled that prince's invasion of Provence in 1536, as the lieutenant-general of Francis, with as much military vigour as prudence, and he exerted himself in putting the metropolis, and other places in Picardy and Champagne in a formidable state of defence. After the death of Francis I. his credit declined by the intrigues of the cardinal of Lorraine, and retiring to Rome, he resigned his preferments to France, and was made bishop of Ofla. He was so much respected by his brother cardinals, that they had thoughts of raising him to the pontificate, when he died in 1560 at Rome, aged 68 years. Bellay was distinguished as a patron of literature, and by his advice, in concurrence with that of Budaeus, Francis I. founded the royal college in 1529. He was an elegant writer, both in Latin and in French. In the Latin language he wrote some harangues, and an apology for Francis I. and in the latter three books of poems, confounding of elegies, odes, and epigrams, published by R. Stephens, in 1549. Gen. Dict.

Bellay, Joachim du, a French poet, was born at Lire in Anjou, about the year 1524; and amidst various domestic misfortunes, which marked his earlier years, he directed his attention to the study of the ancient and modern poets. At length his own performances in verse made him known at court, and he became the delight of Francis I. Henry II. and Margaret queen of Navarre. He was characterised by the appellation of the "French Ovid," which seemed to have not improperly been bestowed upon him, on account, partly, of the sweetness and facility of his muse, and partly of the licentiousness of some of his pieces. In the former he particularly excelled, and a rank has been assigned to him as a poet next to that of Rouard. He followed his relation the cardinal to Rome; and on returning with him to France as his agent, he left his favour in consequence of charges of irreligion and immorality that were alleged against him. But another relation, who was bishop of Paris, gave him a canonry in his church in 1555, and he had the prospect of further preferment; but was carried off by an apoplexy, January 1, 1561. His French poems were published in 1561, and his Latin ones in 1561. Nouv. Dict. Hitt.

BELLE DE NUIT, in Botany, a name which the French give to the flower of the Jalap.

Belle, bay, in Geography, a harbour on the N. E. part of the great bay, called Fortune bay, on the south coast of the island of Newfoundland, in the Atlantic ocean.—Alfo, another bay on the N. W. side of the same island, 6 or 8 leagues N. W. from the bay of Isles, and about as much S. W. from the small bay of Higoumancourt.

Belle Dune, La, or Handford Town, a long projecting barren point, on the south side of Chaleur bay in North America, about 8 leagues N. W. of Nipiguitou, where temporary cod and herring fisheries are carried on by different people; no trade being established at the place.

Belle Isle, Belleisle-en-Mer, or Belleisle, an island in the bay of Bifcoy, near the W. coast of France; about 9 miles long, and from 2 to 4 broad, surrounded by steep rocks, which, together with the fortifications, render the conquest of it difficult. It was taken by the English in 1761; but restored at the peace in 1763. The soil is various, rocky, with salt marshes, and some fertile grounds. Before Paris, the capital, it contains three other small towns, and about twenty villages. N. lat. 47° 17'. W. long. 5° 6'.

Belle Isle-sur-Mer, in the department of Norbihan, and chief place of a canton, in the district of L'Orient, by the late French arrangement, contains 2,496, and the canton 5,569 inhabitants: the territory includes 107 kilometres and 5 communes.—Alfo, a small island of France, in the river Loire, in the department of the Mayenne, half a league west of St. Mathurin.—Alfo, an island on the east side of the northern part of Newfoundland, eait of Caribou head between 50° 4', and 52° 50'. N. lat. and between 55° 39' and 55° 45'. W. long.—Alfo, an island of North America, at the mouth of the straits of this name, between the country of the Esquimaux, or New Britain, and the north end of Newfoundland. The island is about 7 leagues in circuit, and lies 16 miles from the nearest land on the coast of Labrador, or New Britain. On the north-west side it has a harbour for sailing vessels, or small craft, called "Lark harbour;" and, on the E. point, it has another small harbour or cove, which will admit sloops. The narrow channel between Newfoundland and the coast of Labrador, called the " Straits of Belle Isle," receive several rivers from the coast of Labrador. These straits lead into the gulf of St. Lawrence from the N. E. and are distant 3 leagues N. from Newfoundland. The north point of the island is in N. lat. 51° 57' and the south point in N. lat. 51° 48'; and W. long. 55° 46'.—Alfo, an island of Ireland in Lough Erne, in the county of Fermanagh, 6 miles S. E. of Enniskillen.

Belle-ille-en-Terre, a town of France, in the department of the Northern coast, and chief place of a canton, in the district of Guingamp. Situated on an island in the river Guer; 3 leagues west of Guingamp. The place contains 812, and the canton 9,118 inhabitants: the territory includes 1,524 kilometres and 6 communes.

Belle Plaine, a valley of Piedmont, in the Alps, situate partly in the county of Nice, partly in the county of Tenda, a few miles N. W. of Saorgio.

Belle D'Entente, a town of France, in the department of Cote-d'Or, and chief place of a canton, in the district of Beaune. The place contains 17,174, and the canton 10,324 inhabitants: the territory includes 215 kilometres and 17 communes.

Belleforest, Francis du, in Biography, was born at a village called Sarzana, in the province of Guinée in 1530, and after an early education in the court of Navarre, was sent to study the law at Toulouse. But employing himself in writing panegyrics in bad verse, on all the noblest in and about Toulouse, by whom he was rewarded with praise and entertainment, he removed to the capital: and by attention and industry attained to some reputation in the reigns of Charles IX. and Henry III. so that he gained the poét of historiographer-royal, which he afterwards sold for want of paying due regard to fact in his productions. He is said to have composed more than 50 works on different subjects, during a life of 53 years, as he died at Paris in 1583. It is related of him, that there was neither tongue nor science which he did not profane. His most fertile topic was history: and he published compilations of "Tragical Histories;" and "Wonderful Histories." These two works wearisome are, "The History of the nine Kings of France, of the Name of Curie"; folio; and "The Annals of general History of France,"
FRANCE," Par. 16. 2. 2. vol. 5. folio. in which last work, are several curious facts, most useful to writers, and to the literary and scientific world. Gen. D. Nov. 28. 1817.

BELLE POLICE. Louis D'Artigues, generally called the "Abbe," was born in a family in the isle of N. S. in 1683, and entered into the society of the Jesuits. He took a principle of D. riches, which were opposed by the Jesuits. He also lived in the world, preaching occasionally with applause, but devoting himself chiefly to the profession of a writer. Under this character he wrote many books, and supported himself chiefly by the profits accruing from them, attending to the poor every thing that exceeded a bare maintenance. Some time before his death he was driven from his literary labours, sold his books, and retired to the community of St. Francis de Sales at Paris, established for the support of poor priests, and here he died in 1734. His various publications consisted chiefly of translations from the works of St. John Chrysostom, St. Paul, St. Gregory Nazianzen, St. Ambrose, Thomas a Kempis, etc., and also from Ovid, Virgil, and other prose writers. He is a pure and simple writer, but he often violates the laws of elegance, especially of the Greek fathers. The index of his works is very extensive, in general, morals, and matters of style. Those that have been most favorably received are: "Le de la Création," and "Le Rêve," both of which may pass and diffuse in the world; and "Récits de l'Antiquité," and "Récits de l'Antiquité," to mention only the works of Style. They, and some other pieces, from a collection of his small volumes, New, Dill, Beller, Belle Reader, in Geography, a fortified town of France, is the capital of the province, it was taken by the Spanish in 594, and sacked by the annual Moorish invaders. After the peace of Nanua, Louis XIV. built a regular fortress with five batteries to defend the Pyrenees; 3 leagues S. of Paris.-Allo, a town of France, in the department of the Loire, and chief place of a canton, in the district of Montargis. The town contains 790, and the canton 670 inhabitants: the territory includes 1731 square, and 12 communes.-Allo, a town of France, in the department of the Creuse, and chief place of a canton, in the district of Aubusson. The town contains 1002, and the canton 673 inhabitants: the territory includes 1753 square, and 9 communes.

BELLE-TOURAY, a town of the kingdom of Germany, in the canton of Ures, and 3 leagues of Buda, with a rich soil of the rivers. It is about 10 miles from Paris, and is a pleasant situation, surrounded by mountains, and many lakes, and deep woods. In this place is situated a monastery of monks and canons.

BELLE-PRENE, a town of France, in the canton of N. E. of the 57.

BELLE-NEUVILLE, a town of France, in the department of the N.-E. and chief place of a canton, in the district of Grasse, 3 leagues S. of Cannes, and 5 leagues E. of Nice. The town contains 242, and the canton 520 inhabitants: the territory includes 1024, and 55 communes.

BELLE-SUSSON, William, (E. 7. e. 7. L. V.) in Geography, a native of France, and author of a Memoir, was born in 1682, and finished the society of the 17th century. He was professor of the Belles-Lettres in the university of Paris in 1622, and continued for a considerable time in that office, even after he was made master of the place, and taking James I. of England. At Paris he published, in 1614, his "Chierco Praxev," containing a sort of extracts from Cicero's writings, relative to the laws of nature, the duties of a prince. This work was reprinted to 1111, prince of Wales, and he procured it by a prize a "De jecor et Sempiterni Regum polit.," in which there is a rich vein of metaphysical, etc. He died in 1621. The origin of such errors in religion, and of such defects in policy and morals, is traced out with considerable accuracy and learning. But while the author condemns the monstrous tenets of ancient idolatry, and the gross corruption of philosophy, he believes many judicious remarks on the wisdom and the patriotism of some ancient legislators. In 1612, the author published a work similar to the former, under the title of "Chierco Consul, auctor Sempiterni Romanorum;" on the nature of the consular office, and the constitution of the Roman Senate, but with the reception given by the public to these works, he conceived the plan of a third work, "De Statu proori Orbis," which was to contain a history of the projects of government and philosophy from the ancients up to their various degrees of improvement under the Hebrews, Greeks, and Romans. This work was dedicated to Charles, prince of Scotland and Wales; but when he had proceeded so far as to print a few copies of this work, in the year 1615, it was suggested to him, that his three treatises, "De Statu Princ. 1. "De Statu Republica;" and "De Statu Orbis," being on similar and connected subjects, might be united in one work; accordingly they were reprinted in this form under the title of "Belendemus de Statu," in 1616. Bellerophon, afterwards projected a more extensive work, "De Trib. Itineribus Romanorum," in which he endeavored to join Cicero and Plutarch, but death prevented the execution of his whole plan. He was an able writer, and a man of extensive knowledge and sound judgment. His Latin style is formed upon that of Cicero; and he embraces every opportunity of introducing the most choice and proper proverbs from the Roman orator, even whilst he is expressing his own sentiments, so that it is not always easy to distinguish sentences cited from Cicero, from his own language. The book "De Statu," was reprinted in London in 1657, 8vo, by a certain publisher; (supposed to be published by the learned Dr. Park,) with a Latin preface by the editor, relating to the public and public characters of that period, and beautiful engravings of Mr. Burke, lord North, and Mr. Fox, to whom the three treatises are respectively dedicated. To preserve the memory of every composition which flowed from the pen of Bellerophon, the editor has inserted an epitaphium on the marriage of Charles I. and a "panegyricum carmen" on the embassy to Spain. These verses were found in the British Museum.

The editor owns his firm conviction that Dr. Mablyton, in his celebrated history of Cicero, was much indebted to the writings of Bellerophon; although he has never mentioned his name. Pref. to Belleandemus de Statu. POLIO. 16, vol. 58, p. 491, 21c. vol. 58, p. 5. 45. &c.

BELLE-EAU, in Geography, a town of France, in the department of the Meuse, and chief place of a canton, in the district of Nancy, 2 leagues S. of, Port-a-Moulin.

BELLE-ROCHE, in Fabulous History, the lion of Glauce-king of Ephrasy, or Cornwall, was contemporary with Julius. Under a charge of humanity, as he lay on his own breast, he was forced to return to the court of Britain, Long of Angier, whom he was accosted by Glauce, or as Homer says, Anta, the wife of Praxev, of an attempt upon her chastity. For this insult Praxev sent to Jobotos, his father.
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father-in-law, king of Lycia, with private instructions to put him to death. Jobates demurring against the execution of these orders, employed him in several dangerous expeditions against the Solymi, and against the Amazons, from which he returned victorious. Having thus ingratiated himself with Jobates, he obtained his daughter in marriage, and a settlement in a fertile part of Lycia, where he reigned and brought up his family. From Homer's account, which represents him as "hated by the gods, and wandering in the Aeolian plain, a prey to melancholy, and avoiding all commerce with men," he seems to have become insane, and to have died in that state. To his various exploits Homer and other writers have annexed the story of his killing the triform monster called the Chimaira, by the aid of the flying horse Pegafus, granted him by Minerva and trained for his use. Of the numerous conjectures that have been offered for the explanation of this fable, we shall only mention that of Bochart, (Phleg. 1. i. c. 6.) who suggests, that in his expedition against the Solymi, he overcame them, and also their three gods, which they painted on their ensigns, in the several forms of a lion, a goat, and a dragon; and which he probably joined together on his own, in memory of his conquest; and this gave birth to the tale of his killing the monster Chimaira. Homer. Iliad. vi. Anc. Univ. Hist. vol. v. p. 97. &c.

BELLES LETTRES, considered as synonymous with polite literature, however vaguely and indefinitely these terms have been often used, properly comprehend those subjects that relate to man as a being endowed with senses of taste and imagination, which were intended to embellish his mind, and to supply him with rational and useful entertainment. In this restricted sense they include the origin, structure, and various kinds of language, or grammar, universal and particular, criticism, rhetoric in its whole extent of composition, style, and elevation; history, in its several departments, ancient and modern, general and special, and all the different kinds of poetry. In the distribution of the Lyceum of Arts, established at Paris in 1792, the belles lettres comprehend general grammar, languages, rhetoric, geography, history, antiquities, and numismatography; whereas, those parts of learning that are of a more grave, philosophical, or abstruse kind, and that are more immediately the objects of the understanding, such as logic, metaphysics, ethics, and the various branches of the mathematics and natural philosophy, are usually referred, by way of distinction, to the classes of sciences. This distinction, however, is not rigidly observed, even by Rollin and others, who professedly treat of the belles lettres. In their confined and appropriate meaning, they open a field of investigation peculiar to themselves. Their province comprehends everything that relates to beauty, harmony, grandeur, and elegance; everything that can foil the mind, gratify the fancy, or move the affections. They present human nature under a different aspect from that which it assumes, when viewed by other sciences. They bring to light various springs of action, which, without their aid, might have passed unnoticed; and which, though of a delicate nature, frequently exert a powerful influence on several departments of human life. Such studies have also this peculiar advantage, that they exercise our reason without fatiguing it. They lead to enquiries acute, but not painful; profound, but not dry or abstruse. They flower in the path of science; and while they keep the mind bent, in some degree, and active, they relieve it at the same time from that more toilous labour to which it must submit in the acquisition of necessary erudition, or the investigation of abstract truth. Besides, the study of polite literature furnishes an agreeable amusement for those intervals of leisure which occur in every man's life; and thus prevents his being a burden to himself, or recurren to the indulgence of pernicious passions, and the pursuit of licentious pleasures. The satisfactions which this study imparts, occupy a kind of middle station between those of mere science and those of pure intellect: they refresh the mind after the toils of intellect, and the labours of abstract study; and they gradually raise it above the attachments of sense, and prepare it for the enjoyments of virtue. Of those, whose minds in early life incline to polite literature, good hopes may be entertained, as this liberal and elegant turn is favourable to many virtues; whereas, to be entirely void of relish for eloquence, poetry, or any of the fine arts, is an unpromising symptom of youth, and furnishes suspicions of their being prone to low gratifications, or defined to disgrace in the more vulgar and illiberal pursuits of life. A cultivated taste increases sensitiveness to all the tender and humane passions, by giving them frequent exercise, while it tends to weaken the more violent and fierce emotions:

" — Ingenias didicisse sidelicet artes,
Emoluit morese, nec flix effe foras.

" These polite arts have humanized mankind,
Soften the rude, and calm'd the hoit'rous mind."

The elevated sentiments and high examples which poetry, eloquence, and history, are often bringing under our view, naturally tend to nourish in our minds public spirit, the love of glory, contempt of external fortune, and the admiration of what is truly illustrious and great. Although it should not be said that the improvement of taste and virtue are the same, or that they may be always expected to co-exist in an equal degree; yet it must be allowed, that the exercise of taste is, in its native tendency, moral and purifying. From reading the most admired productions of genius, in poetry or in prose, almost every one riles with some good impressions left on his mind; and though these may not always be durable, they are at least to be ranked among the means of dispelling the heat of virtue. Indeed, without poifessing the virtuous affections in a strong degree, no man can attain eminence in the sublime parts of eloquence. He must feel what a good man feels, if he expects greatly to move, or to interest mankind. They are the ardent sentiments of honour, virtue, magnanimity, and public spirit, that only can kindle that fire of genius, and call up into the mind these high ideas, which attract the admiration of ages; and if this spirit be necessary to produce the most distinguished efforts of eloquence, it must be necessary also to rehish them with proper taste and feeling. Blair's Lectures on Rhetoric, and Belles Lettres, vol. i. p. 1. Rollin's Method of treating and studying the Belles Lettres, vol. i. p. 3. &c. M. de Rohan's Quotation, delivered before the Swedish Academy, translated by N. G. Agander.

BELLESME, in Geography. See BELLESME.

BELLEVILLE, a town of France, in the department of Paris, and chief place of a canton, in the district of St. Denis, half a league east of Paris.—Alfo, a town of France, in the department of the Rhone, and chief place of a canton, in the district of Villefranche, 24 leagues north of Villefranche. — The place contains 2239, and the canton 11,528 inhabitants: the territory includes 147 kilometres and 12 communes.—Alfo, a town of France, in the department of Vendée, and the district of Montagne, one league north of La Rochefur-Yon.

BELLEVOS, in Biography, a painter of sea pieces, known through all parts of Europe as a good painter, died in 1654. His subjects are views of havens, sea-ports, shores, calms, and storms at sea; but in his calms he fiews his peculiar excellence. Histouch is light, and his colouring clear; the perspective of his sea-ports and buildings is true, and has an agreeable effect; his skies are generally bright, and judiciously
Judiciously managed; and his colouring is transparent. His figures are brilliant, and without much expression. His pictures occur in public sales, and some of his best style fetch a tolerable price. Pitkington.

BELLEVUE, or, the Martyr, in Geography, a town of France, in the department of the Same, and Loire, as a chief place of a canton, in the district of Chârolles. The place contains 1,260 and the canton 9,456 inhabitants; the territory includes 322 square kilometres and 13 communes.

BELLOT. La, or, Le, a town of France, and principal place of a district in the department of the Ain, before the revolution the capital of Le Burguy, and one of a bishopric, seated among hills and small eminences, about 2 miles from the Rhône, and twelve miles east of Lyons. The place contains 5,522 and the canton 12,116 inhabitants; the territory comprehends 195 square kilometres and 22 communes. N. lat. 45° 47'. E. long. 5° 35'.

BELLMORE, a town of America, in Bergen county, New Jersey, on the road to Albany, within half a mile of the line that separates New York from New Jersey, which extends from Delaware river to that of Hudson; distant 24 miles N. by W. from the city of New York.

BELLI, in Modern History, the name of a society or sect among the Negroes of Africa, in the interior kingdoms of Sierra Leone, which is properly a school of seminary for the education of children, renewable every 27th year by order of the king, who is visitor or superior of the college. Here the young men learn to dance, fight, fish, hunt, and above all, to chant a certain hymn, which, in the language of the college, they call "bellum," or the prades of bell: these songs consist of a repetition of the same low expressions, endured by the most indolent and lascivious boys. When a young negro becomes an adept in this practice, he is admitted a fellow of the college, deemed to be qualified for all employments, temporal and spiritual, and entitled to a number of important privileges.

BELLICA columnar is, in Antiquity, a column near the temple of Belona, from which the consul or feckles cell jad to against the enemy's country, by way of declaration of war.

BELLICONUS, in Botany, a species of Calex, (euphorbus) that inhabits Africa. It is of a brown colour: posterior thighs arched, and destated; four spines on the abdomen. Fabricius.

BELLI, or, the Bell, in Natural History, desert species of low-herb of an umbelliferous figure, some of a white colour, spoted with yellow; and some of a yellow, flecked with black lines, after the first fallion.

BELLIDIASTRUM, in Botany. See Dromition.

BELLIDOIDES. See Cystanthemum.

BELIEFRE, Pompon Da, in Biography, Chancellor of France, was born at Lyons in 1529, studied at Tours and Paris, and in 1555 became superintendent of the finances, and in 1579 president of the parliament of Paris. Having been employed in several important embassies by Charles IX. and Henry III. and IV., he was created chancellor by the latter in 1599, as a recompence for his services at the peace of Vervins. In the execution of his office he was enlightened, inflexible, inclined to austerity, and, by the warmth of his temper, to occasional precipitance. He was distinguished by his learning and eloquence, as well as by his talents for business. In 1641, he left the seals, but continued in the polls of chancellor and president of the council; however, he used to say, regretting his loss, "that a chancellor without the seals was a body without soul." He died in 1697; and several eulogies were bellowed on his memory, in honour of the regard which he always exhibited to learning and its professors. The grandsons of the former were distinguished, in the reigns of Louis XIV. and XV., by his legal and diplomatic talents; and was founder of the general hospital at Paris. New Dict. Hist.

BELLINO, in Modern History, a model of trial, or a kind of purgation, practised by the Negroes in the interior countries of Africa, when persons are accused of murder or theft, and confessing of a composition of certain herbs or barks of trees, which they oblige the accused to hold in his hand, under a full persuasion, that, if he be guilty, blisters will immediately rise upon the skin. Sometimes the bellino consists of obliging the accused to swallow a large glass of a liquor composed from the bark of the nemo and quiote trees, which the negroes believe to be virulent and poisons. The innocent immediately reject it by vomit; but the guilty flew a froth about the mouth, and are accordingly judged worthy of death.

BELLING of Haps, denote their opening and expanding to their customary shape, supposed to bear some relation to that of a bell. Haps blow towards the end of July, and bell the latter end of August or the beginning of September.

BELLINGHAM, in Geography, a small town of Northumberland, England. It has a market on Tuesday, one fair annually, and is 500 miles north of London. In 1780, this town was nearly consumed by fire, and its houses now only amount to 70, and inhabitants to 337. About four miles to the south is the village of Wark, where are the keep and some ruins of an ancient castle.

BELLIINGHAM, a small farming township of America, in Norfolk county, Massachusetts, containing 735 inhabitants, 20 miles N. from Providence, and 34 S. from Boston.

BELLINI, Lucrèce, in Biography, a learned and ingenious physician, was born at Florence in 1642. He had the advantage of being educated under Mancherti, Redi, and Borelli, and profited so well by their instructions, that he was made professor in mathematics and philosophy at Pisa, where he was only twenty years of age. He was also no mean proficient in oratory, poetry, and music, but proposing to practice medicine, he was soon advanced to the chair of professor in anatomy, a post he continued to fill with reputation for nearly thirty years. He was one of the principal supporters of the medico-mathematical school, who attempted to explain the causes of the body, the causes of diseases, and the operations of medicines on mechanical principles. In this he was followed by Archibald Pitcairne, who read his works at the schools in Edinburgh during the lifetime of Bellini, and dedicated one of his own works to him. When he was fifty years of age, he was called to Florence, by Colnìo III., who appointed him his physician, and about the same time, on the recommendation of Lancellotti, he was made honorary, or consulting physician to pope Clement XI., but having more imagination than judgment, and. endeavoring to square his practice to his theory, he was generally unsuccessful in his treatment of diseases, and thus soon forfeited the favour, and was cast, both of his prince and the public. In his anatomical researches he was more successful, as he was the first who accurately described the nervous pulp of the tongue, and discovered them to be the organ of taste, of which he gave an account in his "Gullus Organum novissimis Deprecationibus." Bonon. 1683, 1684; and he had before, viz. in 1682, published "De Structurâ Ruminis," Florence, 4to, which had been well received, as containing additional information on the anatomy of that organ. These works have been frequently reprinted, though now, from the great improvements that have been made in anatomy, but little noticed. In 1683, he published "De Urinis et Pulphas." De Maffoni Sarumans, "De Morbis Capitis et Pretoris," being in act, distinct treatises on those subjects, 4to. Bonon. This is a work of in ch research and observation, though often obscure and too theoretical.
It was much celebrated in its time; and BeckerAVE, who published an edition of it in 1717, accompanied it with a commendatory preface. For the titles of the remainder of Bellini's productions, see Fuller's Bib. Med. et Anatom. He died in 1704. Gen. Biog.

Bellini, Gentile, a painter of history and portrait, was born at Venice in 1421, and instructed by his father Giovanni, who was himself an artist in the art of painting, both in ditemper and in oil. He was employed by the doge to paint the hall of the great council, and he executed several considerable works for others of the nobility. His reputation reaching to the Ottoman court, he was invited by Mahomet II. to Constantinople, where he lived in urbane entertainment, and employed in painting the portrait of the emperor, and in various other performances. It is said, however, that the emperor ordered the head of a flayed to be cut off in the presence of Bellini, in order to convince him of the incoherence of a picture which he had painted, of the decollation of St. John the Baptist; but the sight affected his mind so much, that he was never easy till he obtained leave to return to his own country. Mahomet, before his departure, put a gold chain about his neck, and dismissed him with letters of recommendation to the Senate of Venice, which procured for him a pension for life, and an admission into the order of St. Mark. Vafari mentions a sea-fight, painted by this master, which had extraordinary merit. He died in 1501.

Bellini, Giovanni, the brother of the former, was born at Venice in 1430, and surpassed both his father and brother in every branch of painting. He is accounted the founder of the Venetian school, by introducing the practice of painting in oil, which had been communicated to his father by Domenico and Andrea del Castagno, as one says; or which, according to De Piles, he obtained from Antonia of Meli; and by teaching his scholars to paint after nature, the school of Giovanni produced two memorable disciples, Titian, and Giorgione, who brought the art of colouring to its highest perfection; and Giovanni himself, by observing the works of these famous artists, improved his own manner very considerably; so that in his latter pictures the colouring is much better, and the air of his head are noble, although his design is somewhat gothic, and his attitudes not well chosen. He died in 1516. Pilkington.

Bellino, St. in Geography, a town of Italy, in the Polefino di Rovigo, 10 miles W. S. W. of Rovigo.

Bellinzone, or Bellinzona, one of the Italian bailiages of Switzerland, on the south side of the river Teva, north of the lake Maggiore, of Lake of Locarno, and on the confines of the Milano, which, together with the two bailiages of Riviera or Poles, and Val di Benaco, Beogo or Breno, comprehend 110 square geographical miles, and 33,000 inhabitants, and before the French revolution belonged to the cantons of Uri, Schwyz, and Unterwalden. In the 15th century, this country belonged to the counts of Sax, who sold it in 1432 to the original cantons; but Philip Maria, duke of Milan, opposing this sale or exchange, exerted himself to prevent from falling into their hands a town like Bellinzona, so important from its situation and natural strength, to check their inroads and cover his dominions. Having therefore taken possession of it by force of arms, a body of 8000 Swiss passed the Alps. The force of both nations met; the Italians were led on by Caracciolis; a bloody battle ensued, of which both sides claimed the victory: but the Swiss retired with a standard taken from the enemy, and they remained masters of the town. In 1500, however, the three cantons obtained what they long contended for; the inhabitants of Bellinzona, vexed by the frequent changes in the Milanese, submitted to them. The French, when they had conquered the duchy, in vain reclaimed it; the Swis returned possession, and the four Italian bailiages, and this stronghold of the old were formerly ceded to them by Maximilian I., in gratitude for their having upheld him in the dual war. It was likewise made an article of the perpetual peace concluded between Francis I., king of France, and the cantons. The bailiages remain in office two years; he is nominated alternately by the three cantons, and is generally removed from Riviera the poorest, to Bellinzona, the most lucrative of the three governments. An appeal lies from his decision to the syndicate, and from that court to the three cantons: in ecclesiastical affairs, the inhabitants are corrigible to the bishop of Como, excepting three parishes. The inhabitants are catholics; and most of the natives understand Italian, but the language is a corrupt German. After the French revolution, Bellinzona, according to the division of 1799, became a distinct department or canton, including the bailiages of Bellinzona, Riviera, and Val Leonzing, of which the chief town was Bellinzona. By the constitution of 1801, the Italian bailiages formed the 15th department or canton of Switzerland, and was empowered to elect five representatives to the diet. The riches of this district consist in its pastures and cattle; the deficiency of corn is supplied by the Maline; and the plain near Bellinzona produces good wine.

Bellinzona, or Bellinzona, Lat. Bellino, Bellino, Belli- zona, or Bellinzone, the capital of the above bailiages or department, is a beautiful town, situated at the foot of mount Cenero, on a delightful plain on the east side of the Tefino, a little below its junction with the Moesa or Mafa, and about 51 British miles above the northern extremity of the lake Maggiore. The town is encircled with ancient walls and battlements in good repair; on the right are seen the majestic ruins of an ancient castle, and on the left, separately embosomed in trees, are the clefts of the bailiages of the three regent cantons, Uri, Schwyz, and Unterwalden. The interior of Bellinzona is far from corresponding with its external beauty and situation; the streets being narrow, and the houses ill-built. It is, however, rich in fine churches, dedicated to St. Peter, St. Stephen, St. Blaise, and St. Rock; and it has numerous convents of Augustines, Ursulines, and Recollets. There is also a convent, or nunnery, called the "Residence," lately founded for the education of youth. The valley that lies between this town and the lake is level, and had walk by numerous torrents: the road runs along the sides of the hills through continued vineyards; bounded on the west, and also on the east, by ridges which are clothed to their summits with woods of chestnuts and walnut trees, half concealing frequent spires and numerous hamlets. N. lat. 46 4 E. long. 10 43.

BELI.

Elliott, Ch. 4. post. Sph. with equal scales. Seed

BELI, Sec. Anthina, Act. Anth. in Bel- 

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letter to the author, though after Bello's death he retracted his praise. This piece was succeeded by his "Bayard," "Peter the Cruel," and "Gabrielle de Vergy." But the failure of the second of these hastened his death in 1755, to the regret of numerous friends, who were attached to him by the goodness of his heart. As a dramatic writer his distinguishing excellence consisted in his knowledge of flage effect, and of the method of producing it by new and unusual situations; but in pursuing these he quitted the true and natural pathetically, and aided in degrading the modern theatre. His verification is often negligent, and his style hard and inflated. M. Gaillard of the French academy, published a collection of his works in 6 vols. 8vo. 1779, with a life of the author prefixed. Nonv. Dict. Hist.

Bellon, or Belland, in Medicine, a distemper very common in Derbyshire and other counties, where they smelt lead ore, to which beasts, and even poultry, as well as men, are subject; and for this reason a certain space round the melting-houses is called bellon-ground, where it is dangerous for any animal to feed. This disorder is attended with languors, weakens, and intolerable pains, fenation of gripings in the belly, and generally cothiveness. It frequently proves fatal.

The method of cure which has been found most successful in this distemper, is, to give ewenor, or caustics of tartar, in small doses, and to repeat them frequently, as two or three times a day.

Bellonaria, in Mythology, the goddess of war, sifter or wife to Mars.

Hyginus (Fab. 274.) says, that Bellona was the inventress of the shield, called the Greek armor, and hence her name has been fancifully derived. Others with greater probability, deduce it a bella, war; and Bryant (Anal. Anc. Mythol. vol. i. p. 45.) supposes it to be formed from Belon, a compound of Bel, Bal, or Bal, the original Babylonish title appropriated to the sun. This goddess was of a savage disposition, and delighted in slaughter and blood: and she was not only represented as the attendant of Mars, who prepared his chariot and horses for war, but, as taking pleasure in sharing his dangers. She is commonly represented in an attitude expressive of fury and distraction, her hair being composed of snakes clotted with gore, and her garments stained with blood. She is generally exhibited driving the chariot of Mars, with a bloody whip in her hand, and sometimes as holding a lighted torch or brand, and at other times a trumpet. Bellona had a temple at Rome, near the Porta Carmentalis, in which the senate gave audience to ambassadors; and before it stood the pillar or column of war, against which a lance was thrown whenever war was declared. She was also worshipped at two places called Comma, one of which was in Cappadocia, and the other in the kingdom of Pontus; and Camden observes, that in the time of Severus, there was a temple of Bellona in the city of York. Poets and artists have often confounded Bellona with Pallas.

Bellona, in Entomology. Under this name Cramer describes papilio brefiellis of Fabricius. The species bellona of Fabricius and Gemina is a native of North America, has dented falvous wings, spotted with black; posterior ones, beneath yellow at the tip, with fix ocellar barulous spots. A variety of it is figured by Cramer under the trivial name of hirsuta.

Bellonaria, in Antiquity, priests of Bellona, the goddess of war and battles.

The Bellonarii cut and mangled their bodies with knives and daggers in a cruel manner, to pacify the deity. In this they are singular, that they offered their own blood, not that of other creatures, in sacrifice. In the fury and enthusiasm with which they were seized on these occasions, they ran about raging, uttering prophecies, and foretelling blood and slaughter, devastations of cities, revolutions of state, and the like; whence Martial calls them "turba enthousia Bellonarum." Lactant. Infl. lib. i. cap. i. Lucian, lib. 1. Tert. Apol. cap. 9. Minut. Ptol. p. 298. In after-times they seem to have abated much of their zeal and transport, and to have turned the whole into a kind of farce, contenting themselves with making signs and appearances of cutting and wounds. Lampridius tells us, the emperor Commodus, out of a spirit of cruelty, turned the farce again into a tragedy, obliging them actually to cut and mangle their bodies. Lamp. in Commod. cap. 9.

The Bellonarii celebrated feasts on the eve of the nones of June, and the ninth of the calends of April, on which occasion they chewed a plant called Bellonaria, which produced a kind of fury, and disposed them to mangle their bodies in the manner which characterized these feasts.


Eff. Char. Cor. wheel-shaped. Cal. one celled, inferior, many-seeded, beaked with the calyx.


Propagation and Culture. It is propagated by seeds which should be sown early in the spring, in a pot filled with light fresh earth, and plunged into a hot-bed of Tanner's bark, and frequently watered. When the plants are come up half an inch high, they should be transplanted into pots filled with light fresh earth, and plunged again into the hot-bed, watered and shaded till they have taken root; then air should be admitted to them every day in warm weather, and they should be frequently watered. When the plants have filled these pots with their roots, they should be carefully shaken out of them, and their roots trimmed, and put into larger pots filled with light fresh earth, and put into the hot-bed again. In warm weather fresh air should be admitted to them every day; but in autumn they must be plunged into the bark-flove, and treated like other tender exotic plants. These plants will sometimes flower in the second year, but they rarely produce good seeds in this climate. Nevertheless, they may be propagated by cuttings in the summer months, provided they are planted in light earth on a moderate hot-bed, and carefully watered and shaded till they have taken root. They must be constantly kept in the flove, and have a large share of free air.
BELLORI; John Peter, in his works, a noted antiquary, was a native of Rome, and derived from his uncle Francis Angeloni, under whose care he was placed, his taste for antiquities. He was appointed by Chidio, queen of Sweden, the keeper of her library and cabinet of curiosities; and by pope Clement X. ancient town of Rome. He died in 1656, above 80 years of age. His valuable cabinet was afterwards annexed to that of the king of Prussia at Berlin. Of his various publications, relating to his favourite pursuits, the principal are the following: viz. "Notul in Numeat, tum Lithoph. tum aaurum urbis, apologia, 1658," fol.; "Fragmenta Veltign veteris Romae," 1653; fol.; "La Colonna Traiana," fol.; "Le Pette Antich. del Sepolcro de' Nafoni," 1653; fol.; "Le Antich. nec eocr. lapicida figurata," 1691; fol.; "Gli Anti. e lapidiere. sac. Mauv. Romae & Ern.chei," 1693; fol.; "Veteres Areus Augustorum," 1695; fol.; "Vite de Pittor, Sculptor, et Architelli Moderni," 1692, 4to.; "Imag. vetereor. Philosophorum," 1683, fol. Several treatises of this author are inserted in the 7th volume of Gronovius's Greek Antiquities. He also reprinted, in 1685, with large additions, Angeloni's "Historia Augusta," illustrated by Medals. Moteri. Gen. Biog.

BELLOSTE, Augustin, a surgeon of eminence in his time, inventor of a mercurial composition, called after his time, "Belloste's pill," by which he is supposed to have acquired a considerable fortune. After practicing several years at Paris, where he was born in 1631, and as an army surgeon, he was invited to Sardina, and made principal surgeon to the queen's mother, and continued to reside at Turin to the time of his death, which happened July 15th, 1726. The work by which he is principally known, is his "Chirurgie de l'Hôpital," published 1695. It has passed through numerous editions, and been translated into all the European languages. In 1725, he published a continuation of it, under the title of "La suite du Chirurgien de l'Hôpital." Among other useful observations, he recommends piercing carious bones, with the view of accelerating extraction; a practice advised by Celsus, though long discontinued. He reprobates the custom of frequently removing the dressings of wounds, as tending to retard the cure. The work has much merit, though now little noticed, being superseded by later publications. Halier Bib. Med. Pract. et Chir.

BELLOTTI, Pietro, a painter of history and portrait, was born at Venice in 1625, and learned the art of colouring from M. hadal Tarebobo, whose disciple he was. As a portrait painter, he attained the first rank, but was less eminent in the composition of his historical subjects. In the imitation of nature he was peculiarly happy; the colouring of his portraits appears to be real flesh, and the variety in the cast of his heads is inexhaustible; in all his attitudes there is much grace, and the disposition of his figures is natural and becoming. He died in 1750. Pilkington.

BELLUSCIA, in Ancient Geography, a people of Gaul, comprised in the nation of the Helveti, and limited south of the Ambrois. Their country was particularly distinguished by the name of Belgium, and corresponded to the modern Basins; their territory was called by the Latins Cadurca, and Caesar speaks with commendation of their valor and their number.

BELLOWING, among Sportmen, is used for the noise which rays make in cutting-time.

BELLOWS, a machine used to give a brisk agitation to the air, by enlarging and contracting its capacity, and thus expiring and inhaling the air by turns.

This machine is used in chambers and kitchens, in forges, furnaces, and foundries, for driving up the fire; and it is annexed to organs and other pneumatic instruments, in order to supply them with a due degree of air. They are constructed of various forms, and furnished with different kinds of apparatus for giving them motion, and for discharging their air, according to the purposes which they are intended to serve. However, they are in general composed of two flat boards, sometimes of an oval and sometimes of a triangular figure; between these boards are placed two or more hoops, bent to fit their figure; on the edges of the boards is nailed a piece of leather, broad in the middle and narrow at the ends, which unite them together, and it is also affixed to the hoops of the boards, that the latter may move the more easily open and fold again; to the undermost board is fastened a pipe of iron, braze, or copper; and within is a valve, which covers the holes in the under board so as to keep in the air. Strabo informs us (Georg. vi. vol. i. p. 454.), from an old historian, that Anacharsis, the Scythian philosopher, who lived in the time of Solon, about 625 years before Christ, invented the bellows, as well as the anchor and potter's wheel; but this account is very doubtful, as Pliny, Senece, Diogenes Laertius, and Suidas, who likewise speak of the inventions ascribed to that philosopher, mention only the two last, and not the bellows. It appears, however, that they were known in ancient times to the Greeks; and Virgil mentions them in the following passage (Georg. iv. 175.):

"Alius taurinus foliibus auris
Accepiunt, reddantque."

Upon which it may be remarked, that bull's leather is unfit for bellows, and ox and cow's leather only can be used for that purpose; but accuracy, in the description of a mechanical engine, is not to be expected in a poet. In more modern times, wooden bellows have been introduced in metalurgical operations, instead of those of leather. The latter require careful management: the repairs of them are expensive; and they seldom last more than six or seven years. When thin leather is employed, it suffers a great deal of air to escape through it; and this evil must be guarded against by continually bimbling it with train oil, or other fat substances; and this is even necessary when thick leather is used, to prevent it from cracking in the folds. Whenever they are repaired, it is necessary again to soften the leather with oil, and this occasions a considerable loss of time. To obviate these, and similar inconveniences, and with a view to some peculiar advantages, wooden bellows have been invented in modern times, of which we shall give some account in the sequel of this article. In the oldfet melting-houses, the bellows were moved by a handle, like those of the smith's forge, or by the pressure of the foot upon a treadle, or by other means, requiring the force of men. But since the force of water has been employed to move the quantity of one man has not only been far greater, but the separation of the metal more complete; infomuch, that that great part of the metal now prepared at some considerable works, particularly in the county of Gloucester, has been no other than what had been left in the flag of cinders, for want of sufficient force of air.

The action and effect of bellows of every kind, whether leathern or wooden, wrought by water or men, depend on this, that the air which enters them, and which they contain when raised, is again compelled into a narrower space, and as consequence fly out of the pipe or aperture with a velocity propor-
proportional to the force by which it is compressed, and
must therefore blow stronger or weaker, as the velocity
with which the top and bottom of the bellows meet is
greater or lesser. The blast also will fall in proportion to
the quantity of air that was drawn into the bellows through
the valve or wind-clap.

The action of bellows bears a near affinity to that of the
lungs; and what we call blowing in the latter, affords a
pertinent illustration of what is called respiring in the former.
Accordingly, bellows have been employed in respiring sus-
pended animation; and Dr. Hooke found, by renewing the
interrupted action of the lungs by blowing air into them, by
cutting away the ribs and diaphragm, and pericardium, &c.
and laying the thorax of a dog bare, and having cut off the
aorta, arteries below the epiglottis, and bound it on the nodule
of a bellows, that as he blew the dog recovered, and as he
ceased, became convulsive; and thus the animal remained
alternately alive and dead above the space of an hour. See the
methods of recovering suspended animation, under the arti-
cle Drowning.

The bellows of smiths and founders, whether single or
double, are wrought by means of a rocker, with a string or
chain fastened to it, and pulled by the workman. The bel-
lows-pipe is fitted into that of the towel. One of the boards
is fixed; so as not to play at all. By drawing down the
handle of the rocker, the moveable board rises, and by means
of a weight on the top of the upper board, links again.

The bellows of the Chinese smiths is of a very simple kind,
and is composed of a square pipe of wood ABCDE. (Plate
XIII. Pneumatics, fig. 167;) with a square board G, which
exactly fits it, moved by the handle FG. At the farther
end is the bellows-pipe HR, and on each side of it a valve in
the end of the square pipe, opening inward. The piston
is sufficiently tight for their purposes without any other.

The bellows of forges and furnaces of mines usually re-
ceive their motion from the wheels of a water-mill, or in our
large furnaces they are worked by a steam-engine. Others,
as the bellows of enamellers, are wrought by means of one
or more flaps or tresses under the workman's feet.

The bellows of an organ are six feet long, and four broad;
each having an aperture of four inches, that the valve may
play easy. There should likewise be a valve at the nose of
the bellows, that one may not take the air from the other.
To blow an organ of sixteen feet, there are required four
pairs of these bellows.

The bellows of organs are wrought by a man called the
blower; and, in small organs, by the foot of the player. See
Organ.

The method of constructing wooden bellows for the pur-
pposes of metallurgy, was an important and useful invention,
for which we are indebted to the Germans. This is ex-
pressly affirmed by Grignon in his "Memoires pour l'art de
fabriquer le fer," Paris, 1775; and in the time of Debech,
they were to be found in Germany, but not in England.
Gentiane, in his "Tracté de la fonte des mines par feu du
charbon de terre," Paris, 1779, erroneously ascribes the in-
vention to the Swiss; being probably led into this error in
consequence of a Swiss having first made known these
bellows in France. The name of the real inventor, how-
ever, has not been ascertained. From a catalogue of ma-
chines given to the magistrates of Nuremberg in 1558, by
an artist, called Hans Lobfinger, Doppelmayr concludes,
that he understood the art of making small and large bel-
lows without leather, and entirely of wood, which could
be useful in foundling-houses and for organs, and likewise cop-
er-bellows, that always emitted a like degree of wind. As

Lobfinger made organs, Beckman (Hist. Inventions, vol. i.
p. 109.) suggests, that this invention might occur to him;
but he has not been able to learn in what it actually con-
sisted, or whether it might not die with him. Agricola,
who died in 1555, makes no mention of wooden bellows.
Samuel Reyher, formerly professor at Kiel, in the improved
edition of his dissertation on air, printed there in 1669, re-
printed with additions at Hamburg in 1725, and entitled "De
Pneumatica, sive de Aere et Aerometria," informs us,
that "about 30 years ago a new kind of bellows, which
ought to be called the pneumatic chefs, was invented in the
village of Schmälauch, in the principality of Cobourg, in
Franconia," by two brothers, Martin and Nicholas Schel-
horn, who were millers in that village. These brothers
kept the invention secret, but not so concealed as to elude
conjecture. Reyher relates, how he himself formed an idea
of it. Schütter, who has given a complete description and
figure of these bellows in his "Unterricht von Hätten-Wer-
ken," Brunswick, 1758, fol. ascribes the invention to them
to a bishop of Bamberg; and according to his account they
were employed so early as the year 1620, in the forest of
Harz, to which they were first brought by some persons
from Bamberg, "What Calver says (according to Beck-
man, in op. cit.) respecting the introduction of these bellows
into the forest of Harz, is much more probable; that in
1621 Lewis Plancheclam from Thuringia, settled at Ois-
feld near Goislar, and began to make wooden bellows. The
bellows-makers of that place conspired therefore against him,
and swore they would cut him to death; but he was pro-
tected by the government. He would disclose his art to no
one but his son, who, as well as his grandson, a few years
ago had the making of all the bellows in the forest." From
Germany, the art of making these bellows was introduced
into some parts of France, and into Sweden, and became
general though various parts of Europe. This kind of
bellows consists of two boxes placed upon one another;
the uppermost of which may be moved up and down upon
the lower one, in the same manner as the lid of a snuff-box,
which has a hinge, moves up and down, when it is opened or
shut: but the sides of the uppermost box are so broad as to
contain the lower one between them, when it is raised to its
utmost extent. Both boxes are bound together, at the small-
est end, where the pipe is, by a strong iron bolt. It
may be readily comprehended, that when both boxes fit
each other exactly, and the upper one is raised over the
under one which is at rest, the space contained by both will
be enlarged; and consequently more air will rush in through
the valve in the bottom of the lower one; and when the
upper box is again forced down, this air will be expelled
through the pipe. The only difficulty is to prevent the air,
which forces its way in, from escaping any where else than
through the pipe; for it is not to be expected, that the
boxes will fit each other so closely as entirely to prevent the
air from making its way between them. This difficulty,
however, is obviated by the following simple and ingenious
method. On the inner sides of the uppermost box there
are placed movable slips of wood, which, by means of metal
springs, are pressed to the sides of the other box, and fill up
the space between them. As these long slips of wood might
not be sufficiently pliable to suffer themselves to be pressed
close enough; and as, though planed perfectly straight,
they would, in time, become warped in various direc-
tions, incisions are made in them across their whole length,
at the distance of from 15 to 18 inches from each other, so
as to leave only a small space in their thicknees, by which
means they acquire sufficient pliability to be very well
pressed close enough to the sides. This description may be
illu-
illustrated by a figure, (see Plate XIII. Pneumatics, fig. 108) in which the outer box A B C D E F E has its top and two sides flat or straight, and the end B A E E formed into an arched or cylindrical surface, of which the line F P at the other end is the axis. This box is open below, and receives within it the hollow box K I G N M L (fig. 109) which exactly fits it. The line F P of the one coincides with F P of the other, and along this line is a set of hinges on which the upper box turns, as it rises and sinks. The lower box is fastened to a frame fixed in the ground. A pipe O Q proceeds from the end of it, and terminates at the furnace, in a small pipe called the "tewer," or "tuyere." This lower box is open above, and has in its bottom two large valves V, V, opening inwards. (See fig. 110.) The conducting pipe is sometimes furnished with a valve opening outwards, to prevent burning coals from being sucked into the bellows, when the upper box is drawn up. The joint along F P is made tight by thin weather nailed along it. The fits and ends of the fixed box are made so to fit the sides and curved end of the upper box, so that this last can be raised and lowered round the joint F P without feasible friction, and you will not suffer much air to escape; but as this would not be sufficiently air-tight by reason of the thickness and wabbing of the wood, a further contrivance is adopted. A slender lath of wood is divided into several joints, and covered on the outside with very soft leather, is laid along the upper edges of the fits and ends of the lower box. This lath is so broad, that when its inner edge is even with the inside of the box, its outer edge projects about an inch. It is kept in this position by a number of steel wires, which are driven into the bottom of the box, and stand up, touching the sides, as represented in fig. 111, where a b c are the wires, and e the lath, projecting over the outside of the box. By this contrivance, the laths are pressed close to the sides and curved end of the movable box, and the spring wires yield to all their inequalities. A bar of wood R S (fig. 108) is fixed to the upper board, by which it is either raised by machinery, to sink again by its own weight, having an additional load on it, or it is forced downward by a crank or wiper of the machinery, and afterwards raised. The operation in this case, is exactly similar to that of blowing with the chamber bellows. When the board is lifted up, the air enters by the valves V, V. (fig. 110,) and is expelled at the pipe O Q, by depressing the boards. These bellows are made of a very great size, A D (fig. 108), being 15 feet, A B 5 feet, and the circular ends 7 feet. The rive, however, is but about 3 or 3 1/2 feet. They expire at each stroke about 50 cubic feet of air, and make about 8 strokes per minute. The advantages of these wooden bellows are very considerable. When they are made of clean fir wood without knots, they will last 30 or 40 years, and even longer, though continually kept in motion 45 or 46 weeks every year. Some have said, that, when properly made, they will last a century. The effect produced by them is stronger, as well as more uniform, and can be moderated according to circumstances. They are worked also with greater facility. The slips of wood on their sides are apt to be damaged: but they can soon and easily be repaired. Every three or four months, however, the outer sides only of the inner box, and the lath which keeps the boxes together, must be freed with oil. If we calculate the price of such bellows, and the yearly expense, they will, according to Gunning's account (infra supra) be only a fifth part of those of the old leather bellows. They have, indeed, their defects; though they are less expensive and more durable than those of leather, for it is scarcely possible to make the junctures so tight as to allow no exit to the compressed air, and the friction must necessarily be very great. Some, therefore, have had recourse to water, for performing the office of the lower board of the bellows. A bellows on this principle is described by Mr. Trewhall, engineer to his Serene Majesty, in the Philosophical Transactions, under the name of a "water bellows." Of bellows of wood we have one preserved in the repository of the Royal Society; and Dr. Plot describes another, that was used at the copper-works at Ellaston in Staffordshire, Nat. Hist. Stutt. Sch. 4, 1758. Such are the bellows in general use on the continent. In this kingdom, a different, and a preferable form is adopted; for an account of which and other contrivances for animating the large fires of furnaces, &c., see Blowing Machine. See also Furnace.

BELLOWS. Apothecary, so called by the inventor M. G. Carey, physician to the military hospital at Neufbrilack, and denoting "a refiner of respiration," an instrument used for inflating the lungs. It is described in the "Journal de Medicine" for June 1792; and consists of a double pair of bellows B C L M (Plate XIII. Pneumatics, fig. 112) the two different parts of which have no communication with each other. In the lower side B M is an aperture A for a valve, constructed on the principles of those of Mr. Nairre's air-pump. It consists of a rim of copper, closed at one end by a plate of the same metal, in which plate are four small holes placed at equal distances. This plate is covered with a piece of silk coated with clathic gum, in which are fix transverse incisions of two, or three, lines in length. Each incision is so made as to be situated between two of the holes, and at an equal distance from each, as represented at D. (fig. 113.) The silk must be made very supple, by a thread passing several times round the rim. It is obvious, that a stream of air applied to that side of the plate which is opposite the silk, will pass through the holes, and, lifting up the silk, escape through the incisions. On the contrary, a stream of air applied to the other side will press the silk upon the plate, and thus close the holes, so that it will be impossible for it to pass through them. This valve opens internally, so as to admit the air from without. At B is another valve, upon the same construction, but opening in a contrary direction, thus permitting the air to escape out of the lower part into the tube E F, but preventing its entrance. At C is another valve, opening internally to admit the air from the tube E F; and at D there is a fourth, opening externally to discharge the air from the upper part. The flexible tube E F, fixed on at the end C B, being introduced externally into one of the nostrils, whilst the mouth and the other nostril are closed by an applicant, if we separate the two handles I, M, which were close together at the introduction of the tube, it is evident, that the air in the lungs will rush into the upper part through the valve C, whilst the external air will fill the lower part through the valve A. The two handles being again brought into contact, the atmospheric air will be forced into the lungs through the valve B, and at the same time the air in the upper part will be discharged at the valve D. Thus, by the alternate play of the double bellows, the lungs will be alternately filled and emptied as in respiration. In using the instrument, care should be taken not to be too violent; as the more perfectly the natural motion of respiration is imitated, the better. To prevent any fulness from without injuring the valves A, D. (fig. 112) the rim is made with a screw B. (fig. 114) in order to receive a cap A, A. (fig. 114) full of small holes. This screw has also another use. It stopplicated air be preferred, a bladder filled with it (fig. 113) may, by means of the screw A, be fastened to the valve A, (fig. 112); and to prevent walk, as this air may serve several times, a flexible tube may be screwed in the valve D. (fig. 112) communicating with the bladder by means of the opening d, (fig. 115.) Thus it may be employed as often
often as the operator thinks proper. There is a handle K to the partition in the middle in order that, if it be at any time necessary to use either of the divisions alone, the other may be confined from acting. c. b. (fig. 116) represent the two valves to be applied at the end of the instrument CB. (fig. 112); and (fig. 117) is a section of the end CB, showing the valves in their proper places. It is proper to add, that the capacity of the instrument should be proportioned to the quantity of air received into the lungs by inspiration, which Dr. Goodwin has ascertained to be twelve cubic inches, or something more. Each division of the instrument, therefore, should be capable of containing that quantity. (See Analytical Review, vol. iv. p. 427.) Roulard presented, and described at a meeting of the Lyceum of Arts at Paris, in 1757, the model of a pair of bellows, constructed on this plan, intended to relieve life to perishing drowned and in a swoon, by drawing out the vitiated air from their lungs, and replacing it with ordinary air, or even with oxygen, or vital air, if necessary; at the same time producing the motion of the lungs, independently of the concurrence of the patient, to the very instant when his strength fails return. The experiment was submitted to public inspection; a bladder being made up to represent the lungs.

Bellows, Bone, globular valves, occur in Herodotus for those applied by the Scythians to the gentials of mares, in order to defend the uterus, and by this compression, make them yield a greater quantity of milk.

Bellows, Bellian, a contrivance for driving air into a mine for the respiration of the miners. This was improved by M. Papin, who changed its cylindrical into a spiral form; and with this, by working it only with his foot, he could produce a wind to raise a weight of two pounds.

Bellows Hydrostatic. See HYDROSTATIC.

Bellows, or Triumph-fish in Ichthyology, a name given by Ray, Willughby, &c. to the species of Centriscus SCOLOPAX. Gmelin.

Bellows Rocks, in Geography, rocks that lie in the Atlantic, near the west coast of Ireland, and county of Galway. N. lat. 53° 11'. W. long. 10° 4'.

BELL, Canterbury, and Coventry, in Botany. See CAMPAULUM.

Bells. Hair. See HYACINTHUS.

Bells Mill, in Geography, a settlement in North Carolina, near the Moravian settlements, at the source of Deep river, the north-westernmost branch of the north west branch of Cape Fear, and about 50 miles west of Hillsborough.

Bells, in Heraldry, are represented as round, when fixed to the legs of a hawk; in which case the hawk is said to be belled.

BELLUFE, in Zool.ogy, a name of the sixth order of animals in the Linnaean system, including the genera of the cyamus, or harp, the bipedipus, the tapir, and jut. These have obtuse-truncated toes, and hoofed feet.

BELLUCCI, Antonio, in Biography, a painter of portrait and history, was born at Venice in 1634, and manifestly an early inclination to painting, became the disciple of Domenico Deforia, from whose instructions he acquired a good manner of handling and colouring, an elegant taste of historical composition, and an expertness in painting portraits with grace and resemblance. Having established, by a variety of performances, his reputation for invention, elegance and spirit, he was invited by the emperor J. leop to his court, and appointed his principal painter. But after remaining five years at Vienna, he entered into the service of the prince palatine, in which he long lived, much respected for his personal accomplishments as well as for his excellence in his profession. Pilkington.

BELLUDGE, in Geography, a tribe of Arabs, inhabiting that part of Persia which lies on the coast of the entrance into the Persian gulf, between Miniau and Cape Jale. They are matters of several tribes, and carry on a considerable trade with Baffora, and even venture as far as the coasts of India. These Arabs are Soumich, and unity of religious sentiments has occasioned their joining the party of the Afghans in the late revolutions of Persia. Some geographers represent these Belludes as inhabiting all along the Persian coast to the mouth of the Indus, and have described them as a warlike people addicted to piracy. Niebuhr is not able to ascertain whether they are to be considered as independent, or contributory to Persia. He thinks it probable, however, that they acknowledge no sovereign authority but that of their own sheiks.

BELLUGA, in Ichthyology. See BELUGA.

BELULLA Bos, a name given by Paulus Jovinus to that species of RAJA called by the old Greek and Latin writers BOM BOMNUS; the same kind which Limonium, and other later naturalists, name specifically OXYRINCHUS.

BELUNESE, in Geography, a small mountainous territory of Italy, but rich in iron mines, forms a part of the marquisate of Trevillo, and belongs to the republic of Venice. It is bounded on the north by the Cadorn and part of Pedia, on the east by a large forest, which separates it from Friuly, on the south by the Trevilian and Peltrin, and on the west by the bifertre of Trent.

BELUNO, the capital of the Bellunese, and see of a bishop, suffragan of the archbishop of Udine, seated on the Pavia, between the town Cadoro and Trevillo; 43 miles N. of Venice, and 40 E. of Trent. N. lat. 46° 10'. E. long. 15° 17'.

BELLY, in a general sense, denotes the whole abdomen, or that region of the body contained between the septum transversum, the hypochondria, and pectoral.

Belly is also used, in a more confined sense, for the intestines alone, as containing the faces. In this sense we speak of the bowels or colic of the belly, &c.

Belly is also sometimes used for a pregnant woman. In this sense we are to understand the phrase among Civil Lawyers, to put the belly in possession of an estate.

Belly is also used in speaking of the bodies of animals; is synonymous with abdomen, and may be comparatively said. It is variously characterized, according to their food and habits. In those which feed on vegetables, it is in general capacious, and hanging low; in the carnivorous, light, and drawn up at the flanks. In a horse, a barrel-shaped or cylindrical belly is most admired; if hanging low, he is said to be cow-bellied; if two much contracted, he is said to be stuck up at the flanks. Gras, too much water, broken wind, and in mares the gravid uterus, occasion the belly to relax and become pendulous; dry food, as oats, beans, and hay, &c. and also acute pain, contract the volume of the belly. The free moving rumination animals, as oxen, &c. have the belly the most capacious and pendulous of all quadrupeds. This increased volume of the intestines and stomach appears to be designed for the purpose of enlarging the surface for digestion and chylogization, and extracting more completely all the nutritious particles, so that a lesser quantity of food will suffice; this circumstance is particularly remarkable in the sheep, which can fatten on the shortest grass, and almost barren glebe.

In the abdomen of the horse, and other graminiferous quadrupeds, whilst its vast surface exposes it more to action upon by changes of weather, as cold, rain, wind, &c. than in the carnivorous animals, to it has appeared to us to be also provided with a thinner and less fatty membrane, or mesentery, to cover the intestines from their influence. Hence appears
appears to be a cause for the frequent indigestions in these animals, often speedily terminating in death, to which their capacity also greatly contributes by receiving a large quantity of food at once. See the article Gastroenteritis.

The abdomen of the horse and ox, and other quadrupeds of this description, from its small size, figures below the pinnia or knuckle, which occurs above the third of the hoof, to be mostly overlooked or taken for some other part; the pinnia or knuckle being the real termination of the thigh in these animals.

In the horse, the volume of the abdomen is formed by the vast magnitude and length of the intestines, and a four-footed animal of great stature; in the cow, on the contrary, the swelling base of the abdomen is occasioned by four large cervices, and the intestinal canal is proportionably small and short. The sheep with four stomachs possesses a vast length of intestine.

The abdomen, in Anatomy, denotes the body thence as contributing not from the two extremities, or terminal. From the condition of this, muscles are divided into rectus, or Pallas, and oblique, or donaldus, and giganteum, or donaldus.

Pall Trauf. N. 158.

Low will have the muscles to be digital, or subdivided, in which he is incessant by Hefman and others.

Belly named, a name given in America to a species of the Jatrophaceae.

Belly, Dru. m., center de plus, is used by some Astrologers to denote the point in a planet's orbit, where it has its greatest latitude, or is distant but distant from the ecliptic; more frequently called its limit.

BELMONT, in Geography, a town of France, in the department of Seine, a chief place of a canton, in the district of Rouen, 14 miles northeast of Rouen. The town contains 175, and the canton 72, inhabitants; the territory includes 937 hectares and 980 acres. — Also, a town of France, in the department of the Aveyron, and chief place of a canton, in the district of St. Africa, nine leagues east of Alby. The town contains 5,703 inhabitants; the territory includes 220,000 hectares and 50,000 acres.

BELMONT, a town of Italy, in the kingdom of Naples, and province of Calabria, Cita, having a castle on an eminence near the sea, 11 miles WSW of Calabria. N. lat. 37° 20'; E. long. 16° 53'. — Also, a small town of Portugal, in the province of Beira, and jurisdiction of Correia do Corte and Brancas, containing about 11,490 inhabitants, two countries, and a district of two parishes.

BELON, or Belon, in Ancient Geography. See BeLON.

BELOR, a name given by some to a horse, otherwise called Winderus.

BELONGY, Belangor, a kind of divination by means of arrows, practised in the East, but not among the Arabsians, among whom it continued till Mahometanism prevailed, which latterly banished it. The word is from the Greek or Latin forms of the word, and belongs to the place of the place, which is a signal hill, being within the borders, or the place where the sand was collected. In ancient arrows were kept in the temple of the gods. Another way was to have the arrows put up on one of which was written, 'Mephisto I am armed me,' on another, 'Mephisto I am armed me,' and on the third, nothing at all. These were put into a water, out of which they drew one of the three at random; if it happened to be that with the first inscription, the thing they considered about was to be done; if it was the second, that said the second inscription, it was let alone; and if it proved to be that without inscription, there was no more to be done. These divining arrows were generally consulted before any thing of moment was made taking; when a man was about to marry, or to go a journey, or to the like.

Belongy is an ancient practice, and probably that which the Pahlavi nations, chap. xx, ver. 21. At least St. Jerome marks this, and above, that the practice was frequent among the Advocates and Babylonians. Something like it is also practised in China, chap. iv. only the arrows had no inscription and were dipped in a vessel filled with water, which is rather a habit than by divination. Certain, as well as St. Jerome, containing is the two together, and that they pretended to read the future, Chaldeans, and Scythians, to whom they were given, and to the Romans, with the Tacitus observes, made use of belonging.
which many people conclude, though very unjustly, that it cannot be a wholesome food.

All the upper part of the back and head of this fish is of a beautiful green colour: faces and belly silver. The number of rays in the dorsal fin are about sixteen; pectoral thirteen; ventral eight; anal twenty-two; and in the tail twenty-two; but these are liable to vary in number, as in other fishes.

BELOW, or Belan, in Geography, a river of England, which runs into the Eden, 2 miles north of Kirby-St Stephen, in the county of Westmoreland.

BELZERO. See Belo-Ozero.

BELERG, a mountain of Switzerland, about 7 or 8 miles from Bern, being part of the chain of the Alps; the fronts of which are full of different species of chemists, ophides, globidicis, sphalidicis, and other similar perforations.

BELFICH, a town of France, in the department of the Ande, and chief place of a canton, in the district of Callemandry, 32 miles south-west of Callemandry. The place contains 2081, and the canton 5318 inhabitants; the territory includes 140 kilometres and 12 communes. N. lat. 43° 12'. E. long. 5° 39'.

BELPRE, a small town and small settlement of America, in the territory north-west of the Ohio, on the north-west bank of the Ohio river, between the Bockhocking and Muskingum rivers, and opp. site the mouth of the little Kanahaw; about 14 miles below Marietta, and 480 miles S.W. by W from Philadelphia.

BELSHAZZAR, in Scripture History. See BABYLONIA.

BELSUN, in Ancient Geography, a town of Hapsamn Tarragonensis, in the country of the Celtiberians. Proeminy.

BELSUNCE, Henry-Francis-Xavier de, in Biography, denounced, by way of honourable disdination, "the good bishop of Marfelles," was the son of the marquis of Belfonce, a nobleman of Guener. After quitting the society of the Jesuits, into which he first entered, he was in 1709 nominated to the bishopric of Marfelles; where he distinguished himself by his fortitude and charity, during the dreadful plague which afflicted that city in 1720 and 1721.

Such was the effect produced by his attention and liberality on occasion of this calamity, such the attachment cemented between him and his diocesans, by their gratitude and his own sympathy, that he declined accepting the bishopric of Lyon, to which he was annexed a pendant and a dukedom, which was offered to him by the king in 1723. He died in 1755. Now, D.M. Hilt.

BELT, Baltheus, and among the ancient and middle ages writers, zeno, cinugam, remumiam, finia, or finia, and holidelas, in Armour, a kind of military girdle, in which a sword or some other weapon is commonly hung.

That the belt, or girdle, formed a material part of the Hebrew armour, may be gathered from the expressions frequently repeated in the sacred Scriptures. The Almighty girded himself, imported not only his giving notable displays of power, but his readiness to act, and his girding others expressed the ability he had bestowed upon them to perform magnificent exploits.

The belts of the Hebrew soldiers, with which they girded on their arms, went not about their shoulders but their loins, and were supposed to strengthen them. (See Neh. iv. 18. Ezek. xxiii. 36.) They were generally valuable, especially those of commanders, and were sometimes given as rewards to soldiers. Jonathan presented his to David (1 Sam. xviii. 4.) and Joab tells the priest, who had seen Absalom hanging from the tree, that if he had smitten him to the ground, he would have given him ten shekels of silver and a girdle.

The Greeks called it -chevron, or cheiros, and they thought it so essential to a warrior, that cheiros became a general term for clothing themselves in armour. Whence Agamemnon is decribed by Homer

"-μη ęs σαρκα, δὺ διοικέσθαι αυτόν;"

and which no doubt occasioned Pausanius to suppose that cheiros had a reference to the whole armour. So Herodotus, relating the flight of Xeres to Athens, describes him, when arrived at Abdera, and believing himself free from danger,

νυν οὐ κατώ, ἵνα διαφελιτη αυτοῦ.

(Urania. cxx.)

Among the Greeks, the belt was worn very differently from the manner already described, and reached even to the thigh, whence Homer's hero, (Odyss. i.)

"-δοσε μου ἄρειν ἐπέσπερ οὖς μεγάς,"

and Virgil's Aeneas (l. x. 186.)

-οὗτος ἀσθημα.

Enipit a femore.

Foot soldiers, we are told, wore their swords on the left; horsemen, on the right side. Josephus, describing the downfall of Jerusalem (l. iii.), expressly mentions horsemen with their swords on the right. But whether this was constantly the case, or frequently varied, as Lippius has observed of the Roman sword, cannot easily be determined.

Herodotus, mentioning the military habits of the Persians, says, they had daggers suspended to the right thigh by a belt.

Riger has given a bull of Scipio, copied by Montfaucon (vol. iv. pl. vii. f. 4.), which has an embroidered belt hanging from the right side; while a soldier on the arch of Conftantine is represented in scale armour, with a belt suspended from the left shoulder. Montfaucon, vol. iv. pl. xx. f. 2.

In our own country, like those of ancient times, it was frequently ornamented in the richest style; and it is worthy of observation, that in some of the most magnificent illuminations of our ancient manuscripts, even in the same picture, the sword is represented as indiscriminately belted on the right side or the left. In later ages, the belt was given to a person when he was raised to knighthood; whence it has also been used as a badge of the knightly order.

Belt is also a denomination applied to a sort of bandages in use among surgeons. &c. Thus we meet with quicksilver belts, used for the itch. A later writer describes a belt for keeping the belly right, and discharging the water in the operation of tapping. Medic. Ed. Edinb. tom. i. p. 218.

BELT, or BARTIS, in Ecclesiastical Writers of the Middle Age, denotes a sort of girding of beads.

Belt is also a frequent elicafe in sheep, cured by cutting their tails off, and lying the fore bare; then causing mould on it, and applying tar and groof-grease.

BELTEIN, in Mythology, a superstitious custom, formerly observed in Scotland and Ireland; and according to Dr. Ledwich, on the authority of Wurmius, in Scandinavia. Dr. O'Brien, in his Irish Dictionary, explains it ignis Beli Dei Affociati; and mentions, that on the first of May the Druids were used to light large fires on the summits of hills, into which they drove four-footed beasts, uling at the same time certain ceremonies, to expiate the sins of the peopie. This pagan ceremony of lighting these fires in honour of Belus, or the sun, gave its name to the month of May, which is called Beltane, and May-day la Bealtine. On this day all the inhabitants of Ireland quenched their fires, and kindled them again out of some part of the faced fire. That celebrated Irish antiquarian, general Vallancey, infers from the name of this custom, that it was derived from the Persians, Scythians, or Phcenicians, by whom the sun was worshipped under the same name of Belus, or Bel, and on the tops of hills also, as appears from the high places mentioned in scripture.
scripture. In Gaul also there are traces of the same sup- 
ported deity being worshipped under the name Belinus. The 
Irish still preserve the custom; and to this day in many 
places fires are lighted on the first of May in the milking 
yards, when the men, women, and children pass through or 
leap over, and the cattle are driven through the flames of 
the burning straw. In the western isles of Scotland, Mr. 
Martin found a like ceremony called by the same name; and 
Mr. Pennant thus precisely describes it. "It is a kind of 
rural festival, performed by the herdsmen of every village 
on the first of May. They cut a square trench on the 
ground, leaving a turf in the middle; on that they make a 
fire of wood, on which they dress a large cauldron of eggs, 
butter, oatmeal, and milk; and bring, besides the ingredi- 
ents of the cauldron, plenty of beer and whisky; for each of 
the company must contribute something. The rites begin 
with spilling some of the cauldron on the ground by way of 
libation: on that every one takes a cake of oatmeal, upon 
which are raised nine square knots, each dedicated to some 
particular being, the supposéd protector of their flocks and 
herds, or to some particular animal the real destroyer of 
them. Each person then turns his face to the fire, breaks 
off a knot, and slinging it over his shoulder, says, This I 
give to thee, quarter thou my bread; this to thee, quarter 
my flesh; and so on. After that, they use the same 
ceremony to the noxious animals. This I give to thee, O fox! 
quarter thou my lands; this to thee, O barded crow! this to thee, 
O eagle! When the ceremony is over, they dine on the cauld- 
ron; and after the fast is finished, what is left is hid by two 
persons designated for the purpose; but on the next Sunday 
they reassemble, and finish the relics of the fest entertainment." 
That fire was adored in Ireland, is sufficiently 
proved from this celebrated festival, independently of other 
circumstances; but whether it can be urged in proof of the 
colonization of Ireland by the southern Scythians or Per- 
fins is not equally clear. Dr. Ledwich says, that this fire 
was adored by the Celts and Northern Scythians, and mentions 
from Worsinim the manner of kindling it. On the other 
hand, the name bears a striking resemblance to that of the 
Aryan deity; and the early naval expeditions of the Phoenici- 
ans render it being communicated by them less improbable. 
The writer of this article has not, however, yet met with 
any account of a similar practice amongst the nations in the 
south of Africa, or with any attempt to explain the name 
from those languages which are undoubtedly of Celtic 
origin. The circumstance, indeed, of all languages having had 
one common source, lends the force of those arguments 
which are derived from a resemblance in words denoting the 
same thing; and yet great discreet is laid on such resemblance 
in the arguments for the Phoenician colonization of Ireland. 
Collectanea de rebus Hibernicis pellium. Pennant's Tour in 
Antiquities of Ireland. See Bellus.

BELTS. In Geography and Navigation, denote certain 
flags near the Sound, through which ships pass from the Baltic to 
the German ocean. They belong to the kingdom of Denmark, 
which exacts a toll, varying in its amount, and in some 
circumstances attending the collection of it, from all ships that pass 
through them as well as the Sound. They are divided into the greater and the lesser. The greater belt forms a 
communication between the Scaggeck or Cattegat sea and 
the Baltic, separating the island of Zealand and Fynen. The 
lesser or little belt forms a communication between the 
Cattegat and Baltic, and separates the isle of Fynen from the 
continent. The passage from Aflens to Armar Sound, 
in the duchy of Schleswig, across the little belt, is 9 miles.

BELTURBET, a market and post town of Ireland, 
in the county of Cavan, situate on the river Erne, 3 St. 
Irish miles north-west of Dublin. It has a navigation 
through Lough Erne to Belfeck, within three miles 
of Ballyferran, where it is interrupted by considerable falls. 
The navigation from Lough Erne is open to the town, 
with water enough in winter, and by reducing a few flats 
might be made completely so in all seasons. No place 
indeed can be better situated for trade or improvement. 
The beautiful expansion of water and picturesque views are 
highly engaging, and the land is a sound limestone. Yet 
the market is indifferently supplied, which may in great measure 
be attributed to the custom of being taken in kind, without 
any lawful standard or measure, so that it is more advantageous 
for the buyers and sellers to go to other markets. These 
culms are individual property, and free for 100, per annum.

The town was regularly divided into compartments, 
term'd homesteads; each of which contains 56 square 
yards, to which is annexed a proportionate quantity of 
land. Every household has also a right to pasture on 
an extensive common belonging to the town, which was 
given by the Lamphoun family, to which it formerly belonged, 
and which seems to have spared no expense for its improvement. 
Another grant of two hundred acres has become the 
property of the burgesses, who divided it, and have 
transmitted it down in their respective families. There are 
fine meadows, especially the one lately erected on the post 
now belonging to lord Farnham; but in general they are mean 
and unhealthy. There are an excellent flour-mill, a brewery, 
distillery, and malt-houses in the town; and some 
itute is brought to market, but few sold. Cultivation is 
improved in the neighbourhood, but is yet very defective. The 
manors of affairs are unlike, and many; through there is good 
limestone, and much of the soil consists of deep clays which 
could be so well reclaimed with humus; yet this is never used, 
but kept by the lake to the county of Farnham. In the 
church-yard is the vestige of a great fortification, including 
an extensive plot of ground, the bastions and salient angles 
of which are yet perfect; they were admirably planned and

full, sometimes dry. M. Azouz rather imagined the spots 
to be protuberances of the belts. Phil. Trans. Sc. 1708. 
Vol. 24. p. 1. 15. But other astronomers take the spots, which are transparent and movable, for 
the shadows of Jupiter's satellites. The belts of Jupiter 
were first observed, and described by Huygens in his sys. 
Satur. p. 7. See Jupiter.

Coffini also speaks of belts of Saturn: being three dark, 
straight, parallel bands, or fusiuni on the orb of that planet. 
Saturn's belts do not appear to be inherent on his globe, as 
those of Jupiter's are; but rather to be large dark rings at 
a distance from the planet, and surrounding his body. Some 
then imagine them to be clouds in his atmosphere. The middle- 
most seems to be the shadow of Saturn's ring. Phil. Acad. 
1715. See Saturn.
of great strength. Belturbet was a borough town, and, previous to the union, sent two members to parliament.

BELTZ, or Bell, a pataline of that part of Poland which was formerly called Little or Red Russia, and which included three districts, viz. Belk, Horodla, and Hrabowice. Its capital, bearing the same name, is a large town, nestled among marshes in the confines of Volhynia. N. lat. 50° 15', E. long. 23° 50'.

BELITZ, a town of Croatia, 12 miles S. S. W. of Varna.

BELVEDERE, or Belvédère, a town of European Turkey, and capital of a province of the same name, in the Morea, which province lies on the western coast, and is the richest and most fertile in the Morea. From this province the ruins called "belvederes," derive their name. The town lies 20 miles south of Chairentza. N. lat. 35° 3', E. long. 22° 2'.

Belvedere, in Architecture. See Belvidere.

BELVIDERE, in Geography, a town of France, and chief place of a canton, in the department of the Dordogne, and the district of Sarlat, 91 leagues S. E. of Perigueux. The place contains 2000, and the canton 7587 inhabitants, the territory includes 147½ square miles, and 15 communes. N. lat. 44° 30', E. long. 0° 52'.

BELUGA, in Zoology, the name of Delphinus Leucas in Pennant's Quadrupeds.

Beluga, in Natural History, the name of a calculated or lone found in the beluga fish. This fish is found in both fresh, but more frequently in the same; and in those of all ages and sizes. It occurs, however, but seldom; whence it is inferred, that these fishes are not a natural part of the fish, but mere morbid concretions, like the peculiar stones in the animals which produce them, or like the stone in human bladders. It is of various shapes and sizes; but most usual figure is either globular or oval. It is of a yellowish-white colour, and of a smooth and naturally polished surface, and in size it is between a pigeon's egg and that of a goose. It is usually compact, pendent, and solid, not friable, but requiring a strong blow to break it; however, it yields easily to the saw, which dissects its internal structure, that is naturally, very elegant and regular. It consists of several concentric coats, adhering firmly to one another, and form 8 about a nucleus, which generally appears to be some heterogeneous substance. It d green from all other stones of the same kind in its radiated structure, as is composed of a number of regular and even rings proceeding from the centre to the circumference, and representing, both in colour and form, the staves of the "terra soliata tartari," or the flattish pinnacles of antimony. If the stone be scraped to powder and sprinkled upon a hot iron, it gives a faint silver fmall, and calcium into a light, insipid, greyish earth. The people about the Volga hold it in high estimation, and ascribe to it great virtues. They say, it promotes delivery; and they give it in cases of the stone, and disorders of the urinary parts, in doses of 10 grains to a dram. Phil. Trans. vol. lxi. p. 2. n. 4.

BELVIDERE, or Belvédère, in Architecture. This word meaning beautiful view is used in Italy, to denote those edifices built for the purpose of enjoying a fine prospect; these are of two kinds, either detached buildings, or little cupolas (or, to use the expressive English term, look-outs) raised on the tops of houses which terminate them ornamentally, and where one may enjoy the freshness of the evening and the beauties of nature. Almost all the houses in Rome have belvederes of the last kind, the others generally belong to the palaces and pleasure grounds of the great. The most celebrated and remarkable of all is the Belvedere of the Vatican. This large edifice was originally built by Bramante, detached from the pontifical palace, to which it has since been united by two long galleries. It commands the view of the rich campagna, which surrounds the town on this side; the chain of the Appennines forms the magnificent distance of the picture, while the foreground is occupied by the city itself, which is seen in its whole extent. It is from thence that one may fly with Martial: "Fince legem dominus videre muntus."

Et totum hicet ultimum Remanni."

Belvedere are common in France; they are generally single buildings open to the air, or enclosed with doors and windows. They are, however, sometimes composed of various apartments, verandas, balconies, cabinets, &c. Such is the Belvedere in the menagerie of Scans. When, however, these buildings are at a considerable distance from the mansion, and contain several apartments for the purpose of enjoyment, they are called Triumoves.

In England, though the name of Belvedere is not used, it may be properly applied to many of our garden buildings. The old mansions were very commonly gloomy both in situation and in construction, but they generally possessed a summer-house, which was built in an elevated and agreeable part of the garden, where in the most genial months of the year the family might enjoy the air, the prospect, and the social pleasures, without the ceremony of the drawing-room. In our modern villas the beauties of situation are consulted, and every idea of gloom is banished by the long windows, the French doors, and the wide extended lawn; the sublunial summer-house is, therefore, unnecessary; but of the temples, cottages, objects which adorn the modern grounds, while some are merely the ornaments of the landscape, others very exactly answer the description of the Belvedere.

Belvidere, or Belvedere, in Botany. See Scoparia.

Belvidere, in Geography, a new township of America, in Franklin county, and state of Vermont.—Also, a village in New Jersey, in the Sussex county, on the Delaware river, and at the mouth of Pequid river, 11 miles north of Easton, in Pennsylvania.

BELVIS, a small town of Spain, in Estremadura, with a castle, seated between two mountains.

Belulcum, a surgical instrument of various figures, contrived for extracting darts, arrows, or the like from wounds. Hence also the denomination belulcum; quasi biderac sanguinis.

BELUNUM, in Ancient Geography, a town of Italy, in Rhezia, and the country of the Veneti, now Beluno.

Belur, in Geography, the general name given to the Alpine region, which divides the southern parts of the ancient Scythia, or Great Buccharia, from Little Buccharia, lying in about N. lat. 37°, and E. long. 71°, between Ketlin to the north, and Katan to the south, and Badakhan in Great Buccharia on the west, and Balfistan, or Little Thibet on the south-east. Stahrhelen has introduced a town of the same name into his map, but its existence is dubious. Rennell places it at the foot of the mountain, in N. lat. 37°, and E. long. 71°. He has also marked a lake near it, from whence flows the Amu, which, after its junction with several others, proceeds to Badakhan.

Belur Teg, denoting, in the Mongol language, "the dark or cloudy mountains," part of that ridge of mountains which, in a nearly meridional course, terminates Great Buccharia on the east, and divides it from Little Buccharia. These mountains are covered with perpetual snow. They form a chain, supposed to be the ancient Imaus, which proceeds nearly north and south, and is continued by the mountains of Aakor Alak Oola, on the north of Little Buccharia, which join the Bogdo, and on the south is more intimately connected with the Hindoo Koh than with the northern ridges of Thibet. Those who live at the foot of these mountains gather a great quantity of gold and silver dust in the spring,
bring, which is brought down by torrents when the snow melts.

Belus, in Etymology, a species of Papilio, that inhabits Britain. The wings are greenish; inner margin of the posterior pair rather pale; beneath brown, with red lunar marks. Fabricius and Jabolinsky.

Belus, in Ancient Geography, a town of Spain, situated near the column of Hercules. Steph. Byz. This was probably the same with Belo or Belon.

Belus, now Kurdistan a river of Persisicia, which flowed at the distance of two baths south from Prolemais. It had its source in the mount Carmel, about 4 miles to the east of the Kishon, in the lake called by Pony Cendevia. The bed of this river and its vicinity was peculiarly excellent, according to Strabo, for the manufacture of glasses, and here, according to Pliny, the manufacture of glass was first discovered.

Belus, in Ancient History and Mythology, is supposed by some to have been the Pulp of Scripture; and the founder of the Assyrian monarchy; and they add, that he left his kingdom to his son Nebu, or Tshath-Pilefer, who reigned over the city of Babylon. Others conceive Belus to have been the Nomad of Scripture, and more ancient than the Assyrian kingdom. (See Assyria and Babylon.) The tower of Belus was afterwards used by the Chaldeans as an astronomical observatory; and it is said, that Belus told the priests the study of astronomy, in order to encourage that vocation in astrological predictions, which he knew how to apply to political purposes. Hence, as Belus was honored with a place among the divinities, have traced the origin of those fables that are found concerning him in the Grecian mythology, to this circumstance.

Belus, considered as the founder of the Assyrian and Babylonian empires, became the principal object of veneration and worship among the later Babylonians, Persians, and others, over whom the successors of his family exercised the dominion he had founded. According to one story, a temple was erected to him in the city of Babylon, and also a tower; though it is not improbable, that the honour of this temple and tower was meant to be divided between him and the true God. This building (see Babylon) consisted of eight towers raised above one another; and in the apartments were placed a magnificent bed, with a golden table near it, but without any image; nor was any priest suffered to be here in the night, except a particular woman, who, as the priests reported, was preferred by the god to all others. In this place, according to their account, he used to come and repel himself, so that they must have revered him as the Supreme God, who either could not be represented, or not bear the representation in them of attempting his solemn place. Beneath this there was another temple, in which was a gigantic image of Jupiter or Bel, made of gold; gold, with a table and a throne of the same metal. The Jupiter, supposed to be the great Pulp, or Belus, by some inscribed below the ground, and inscribed in gold, seemed to have been, that Belus, or Bel, had placed the image of himself beneath him, and in the altar the god of heaven. The latter was at least 50 feet high, and 40 feet in diameter. Both temples were placed on high terraces, and the rooms below were approached by four stories of stairs. Some were stipulated, that the Babylonian altar was without doors, except the im, which was closed by a golden plate, and was the general object of veneration, and the image of Belus used perhaps for a pinnacle; and that of Bel was certainly, and another much larger: nor the tower were facilitated

none but the king and his sons.

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none but the king and his sons.
tongue inflamed, and five cleft; lip advanced, mouth involved. See Vespa. 

BEMBO, Peter, Cardinal, in Biography, an eminent ref- 

fessor of literature, was the son of Bernardo Benbo, a Venetian nobleman, and born at Venice in 1470. Having studied Latin and polite literature, in 

his early youth, under Urticciu, he went to Maffia in 1492, to pursue the study of the Greek language, under Constanine Laecariu. At Padua, whither he removed in 1495, he received instructions in philosophy from 

Nicholas Leonico Tomeo. Upon his father’s settlement at Ferrara in 1498, he had an opportunity of forming an intimate friendship with Leoniceno, Tebaldeo. Sadoleto, 

and Hercules Struzzi, and he soon afterwards began to dili- 

guishes himself as a writer. His "Azolani," which were 

difficulties on love, written in the Italian language, and so 

named from the castle of Azoli, where they were composed, 

became very popular throughout Italy. At this time he 

was also one of the principal ornaments of the academy, 

founded by Aldus Manutiu in his native city. In 1512 he 

visited Rome, and was well received by pope Julius II. and 

by his successor Leo X. He was appointed secretary, with an 

ample salary. Although, in conformity to the licentiousness 

of the papal court at this time, he kept a mistress, by whom 

he had three children, he discharged the duties of his office, 

to the pope’s satisfaction, and was employed by him in 

various important embassies. In 1520, he removed to Padua, 

for the recovery of his health, where, upon the death of the 

pope, he fixed his residence, passing a tranquil life in the 

profession of his studies, and in the conversation of men of 

letters. To his house, which was richly furnished with books 

and MSS, a select collection of medals and antiquities, 

and a botanical garden, men of science resorted as to a literary 

academy. In 1529, he was nominated to the dignity of 

cardinal by pope Paul III. which with some reluctance he 

accepted, and he then removed to Rome. He was previously 

ordained priest; and, it is said, that he altogether changed his 

mode of life, and sedulously devoted himself to the duties of 

his ecclesiastical functions. Although he was nominated to the 

bishops’ of Gubbio in 1541, and in 1544 translated to that 

of Bergamo, he retired at Rome, and was much honoured 

by the pope, as well as respected by persons of the first cha-

racter in the court. He died Jan. 18, 1547, and was buried 

in the Dominican church, called St. Maria Alla Minerva. 

As a writer of Italian verse, cardinal Bembo formed himself 

upon the model of Petrarch, and contributed to reform and 

polish the poetry of his own country. His prose compositions 

are written with elegance and purity of expression, but 

without any distinguisning traces of genius. In his Latin 

style, he was "Ciceronian," to the extreme of affectation; 

and on this account he was cenured and ridiculed for apply-

ing the terms "heros" to Chrill, and "dea" to the Virgin 

Mary; and for using "perluatio" for faith, and for denot-

ing Leo’s election by "dearan immortum beneficia." 

Like many others of the Italian literati of that age, he seems 

to have thought lightly of his religious creed; and to have 

been more afraid of transgressing with regard to his Latinity 

than with regard to the decorum which religion required. 

To this purpose, he diffused a friend from reading St. Paul’s 

epistles, left he should injure his style; and it is said that he 

would never read the briefs or breviary for fear of corrupting 

his own Latinity. Nevertheless his own epistles have 

been charged with gross faults, and even follies. Some 

compositions of his early days were licentious and obscene. 

His "History of Venice," written in classical Latin, in 12 

books, was undertaken in 1530, by the order of the council 

of ten, and is more admired for elegance of diction than for 

proficiency and accuracy. His principal works are, "Epis-

tola, nomine Leonis pont. Max. lib. xvi." Venet. 1536; 


comprehending his poetical verses, in one volume, Rom. and 

Venet. 1548; "Le Profe," held in high estimation by the 

Italians, in allusion to which Apollolo Zeno says, that "Bembo was the first who explained to his countrymen the 

mechanism and construction of their native language.” "Hi-

toria Rerum Venetarum, lib. xii." Venet. 1551. All his 

works, both in Italian and Latin, were collected and pub-


BEMBRIDGE POINT, in Geography, lies at the eastern 

extremity of the isle of Wight, in N. lat. 50° 40' 15", and 

W. long. 1° 4' 45", and is well known to fishermen as a ledge 

that runs more than two miles into the sea. E. N. E. 

BEMI-CURINI, in Botany, See Justice. 

BEMELS, in Geography, a town of the Netherlands, 

in the duchy of Luxemburg, seated on the east side of the 

Moelle; 2 miles N. E. of Graven Macheren. 

BEMICARY Point and Bay, are situate between Dry 

and Meik river, about N. W. by W. from the port of 

Portland, the southern extremity of the island of Jamaica. 

The point or eastern limit of the bay is in N. lat. 17° 55' 

and W. long. 72° 17'. 

BEMILCUIU, in Mythology, a surname of Jupiter, re-

presented young and bearded. 

BEMISTER, or BEMINSTER, in Geography, a town 

of considerable antiquity in the county of Dorset, England. 

It is seated on the small river Birt, which rises near the town, 

and running southward falls into the British channel at Bre-

port harbour. This manor, and two others connected with it, 

belong to two of the prebends of Salisbury cathedral. 

Though of remote origin, Bemister does not contain any 

particular object of antiquity, and its chapel, a hand-some 

large pile of building, is dependent on the parish church of 

Netherbury, which is nearly two miles distant. The town 

is large and respectable, having many manufacturers settled 

in it, and most of its inhabitants employed in making sail-

cloth, locks, copper goods, leather, &c.; and some of these 

trades are greatly facilitated by the water of the river Birt, 

and the machinery operated on by it. Bemister has suffered 

repeatedly and materially by fire, and the destructive 

sword of civil war. These two were united on the 14th of April 

1644, when prince Maurice was quartered in the town, but 

forced to quit it on that day, as the enemy had fired it in 

five places. From the report of a person who visited it soon 

after, we are informed it was "the pitifullest spectacle that 

man can behold, hardly a house left not consumed by fire. 

There were fourteen and four dwelling-houses, besides 

barns and fléakes burnt," and the lofs sustained was estimated 

at above twenty-one thousand pounds. The inhabitants 

soon afterwards received from the parliament 2000l. with 

which, and other sums, they rebuilt the town; but in June 

1664, it was again conflagrated, when the lofs amounted to 

nearly 10,000l. In March 1751, another fire occurred here, 

and in a few hours upwards of fifty dwelling-houses, with 

several barns, stables, outbuildings, &c. were reduced to 

ruins. In spite of these calamitous events, Bemister is now 

a populous and flourishing town, consisting of 337 houses, 

and 2440 inhabitants. Its principal public buildings are 

the chapel, a free school, an alm-noule, and a market-houle. 

The first stands on high ground at the southern side of the 

town, and consists of a body, two aisles, a chancel, a chantry, 

and a high tower. On the western front of the latter are 

some ornamental statues in niches. Within the chapel are 

some handsome monuments to the Strodes, and other families, 

The free-school was founded by Mrs. Frances Tucker, 

in 1684, for the education of twenty of the poor boys of the 

town. The Rev Samuel Hood, father of the lords 

Hood and Bridport, was master of this school in 1777. 

The
The above house was built and originally occupied by Sir John Sanderson, bart.

In this town are one annual fair, a weekly market on Tuesday, and two usual public fairs for cattle, cheese, &c. About a mile and a half south of Berwick is Barnard, an ancient market town belonging to Sir William Osyler, bart. At Barnard, the market town, is a hill of the same name, near the three springs, which are the source of the river Ait, and known in the Holy Bible. Hutchinson's History of Northumberland, vol. iv.

BENNELL, William Vans, in Geography, a printer of the 16th century, was probably active in 1652, and after having been in the service of Sir W. Sackville, visited Rome for the improvement of his taste and knowledge. His colouring is lively and natural, but sometimes including too much to form; however, as such, he was a subject, and others who, though stained by the rivers, or shaded by the banks, were less lively, and touched with spirit. The lights and shadows of the landscapes are executed with judicious detail, and the sky is distinctly clear, warm, and natural. He died in 1703. Pickworth.

BENMAST, R., in Geography, a town of Perufia, in the province of Taranto. 148 m. s. E. of Siracusa.

BEMOL, R. E. de, in Guido's Scale of Majors, implies B flat, the 4th of the key of F natural, and the mollie hexachord.

In early times of compeotition, before transfixed keys were used, i.e., keys different from the authentic and plagal modes, (See Ecclesiastical Modes) the 4th of a major key, defecting, and 5th of a minor key, were understood to be flat, and the 7th, ascending, sharp, without being marked. And though two of the modes are in the key of D minor, and two in F major, which require flat to the clef, and two in E minor and two in G major, each requiring a sharp to the clef, they were left to the divination of the singer, without characters of indication. See Hexachord and Mode.

The Abbe Fevotte, in speaking of these mysteries, must be allowed to have exercised science and ingenuity, yet it is to be feared, that the young student will be more puzzled and perplexed than enlightened by his labours in this article.

BENJ. POSTA, in Geography, a small town of Portugal, in the province of Tinta-Mos, containing about 400 inhabitants.

BENB, BEN, or BENEN, Oil of, is a fine inodorous and neutral fixed oil, procured from the Ben nut. (Glam. W. M. Pl. 6. p. 390. Moretti) the fruit of the Guiana

The oil of Ben is prepared in the Levant; in Egypt, Syria, and also in Italy, by a process of the nut. Goldrake gives the quantity of oil procured to be 150, from about 8 pounds of the nut. The oil is valuable on account of its great purity, and freedom from smell and taste; hence it may be kept for a long time without altering, or becoming in any degree rancid and acridious. On this account it is not disposed to become drying, like many of the other fixed oils. It is used very largely in perfumery as a basis or vehicle in which the art of the perfumer is able to dispense the fine fragrant scent of various delicate flowers, that do not of themselves retain a sufficient hint in which to fix their tincture. Thus a great proportion of the perfume of the rose are prepared of oil of Ben, and the finest flowers which are probably a very scarce quantity of the oil only can be separated from this oil by distillation. This perfumed oil we have described in another article. 

The medicinal utility of this oil as well as its other qualities make it one of the most useful substances for the perfumery of drugs and essences, and the most suitable for the purpose of pharmacy, were it sufficiently common. It is actually employed for this purpose in many parts of Italy.

Ben Duth, in Geography, a mountain of Ireland, sits partly in King's county, and partly in the county of Tipperary: 16 miles west of Kilkenny.

Ben Cruachan, a mountain of Scotland, in Arrickshire, the elevation of which is 3,500 feet above the sea.

Ben Ledi, a mountain of Ireland, in the county of Galway: 4 miles S. W. of Ros.

Ben Lomond, Ben Ledi, Ben Lamond, Ben More, Ben Macdhaidh, S. Garbaloyn Hill.

Ben Nevis, or Ben Vuirachain, a mountain of Scotland, in the Highlands, reckoned to be the highest mountain in Great Britain, being estimated at 4,370 feet above the level of the sea, and yet not much above the summit of the height of Mount Blanc. It is found in the parish of Kilmallie, Invernesshire. This omnipotent mount is never seen by any meteorologist, but Dr. Williams says, that it forms mostly of porphyry, "of a reddish cast, in which the pale rose, the blue, and yellowish white colours are finely blended, and shaded through the body of the stone." Many specimens of green porphyry are also intermixed, with angular specks of white quartz. A red granite also prevails, which contains a vein of lead ore impregnated with silver. On the north side this mountain presents a precipice nearly perpendicular, and of a prodigious height, being by some accounts 1,500 feet. The view from the summit is grand, exhibiting most of the western islands, from the paps of Jura to the hills of Cullen in Skey; and on the east it extends to Ben Lawers in Perthshire, and the river Nevis; and the extent of view is about 80 miles. The upper half of the mountain is almost destitute of vegetation. The summit is flat, with a gentle acclivity. Snow remains in the crevasses throughout the year; but here are no glaciers, nor other magnificent Alpine features. Drumblain, the "Dorfin Brittania," of the old writers, seems to be Ben Nevis, with the high defter moor of Raas, extending 20 miles to the east of that ground. To the north-west of Ben-nevis is the long mountain of Corri-rok, near fort Angullas, over which a military road has been formed in a zigzag direction. Next the foot of this mountain rises the rapid river Spey, and various other streams, all running to the west. Sircolin's Account of Scotland, vol. iii. William's Natural History of the Mineral Kingdom.

Ben Hark, a mountain of Scotland, in the Highlands, on the west of Rothes, elevations 3,725 and 3,511 feet.

See other mountains of Scotland are distinguished by the appellation Ben, in conjunction with some other word.

BENABARRI, or Benacbarri, a valley, and a place of the same name, located among the Pyrenees, in the province of Aragon, in Spain, on the frontier of Catalina.

BENAC, a town of France, in the department of the Ille-et-Vilaine, and chief place of a canton in the district of Redon; 8 leagues S. of Rennes.

BENALL, a populous town of Egypt, between Modern and Asiat, of Moct. Their three places, with Gorg, constitute the chief market of the trade of Upper Egypt.

BENAMARIS, a town of France; in the department of the Meuse, and chief place of a canton in the district of Longeville. 27 leagues E. of Lunselles.

BENAK, a kingdom of Hindoostan, bounded on the north and north-west by Oude, on the south by Bahr, and on the south and west by Allahabad. The district is also 428 square miles, and contained, with its dependencies, 1,776,291 British miles; its soil is fertile, and the
the country populous. The Zemindary of Benares, which
includes all the circars of Gazypour and Chunar, con- 
stituted a part of the dominions of Oude, until the year 1775, 
when its tribute or quit-rent of 24 lacs, fixed in-creased to 45, 
was transferred to the English, on occasion of the cap-
tion of the province to the India Company. This Zem-
indary, lately in the hands of Cheet Singh, occupies the principal 
part of the space between Bahar and Oude, and that only a 
small part of the territory of the latter touches Bahar on the 
north-west. In 1786 the clear revenue of Benares amounted to 
380,000. Almost in every village of this province, 
which is in a very prosperous state, a peron is employed 
for teaching the youth to read and write; and they have a sin- 
gular mode of teaching reading and writing at the same 
time. The boys are collected upon a smooth flat of sand, 
and with a finger or a small reed form the letters there, 
which they pronounce at the same time. As often as the 
space before each scholar is filled up with writing, it is ef-
faced, and prepared for a new leson: thus the expense of 
pens, ink, paper, and even a house is avoided. The educa-
tion at Benares is chieflly instituted for the Brahmins.

Benares, the chief city of the forementioned district, is 
very rich, and the most completely built of any. It occu-
pies the north bank of the Ganges, and is distant from Cal-
cutta by the road, about 460 miles, and by Moorshedabad 
565 miles. Its ancient name was Kali; but there are no 
notices concerning it in the works of the ancient geogra-
phers. If it had existed during the time of the Syracu-
sean ambassadors, Pliny would have noticed it, as he has done 
Methota or Matura, and Chilasara, which lay near the Jumna 
river. The city is about six miles long and four wide, and 
may be viewed in its utmost extent from the tops of the Mi-
narets of the mosque, erected by Aurungzebe, on the Found-
ation of an ancient Hindu temple, and lately repaired by 
Mr. Hofflings. It abounds in costly structures; but Mr. 
Forster, in his "Journey from Bengal to England," says, 
that the irregular and confused manner which has been in-
variably adopted is forming the streets, destroys the effect 
which symmetry and arrangement would have bestowed on a 
city, entitled, from its valuable buildings, to a preference of 
your capital, seen by him in India; and it is also very inju-
rious to the celebrity of the town. At Benares the num-
ber of Europeans is very small; a judge, registrar, collector, 
with a few civil servants, constitute the whole of the com-
pany's establishment there; and a few private merchants and 
planters make up the whole society. Of natives, however, 
the number is great; and many of the bankers are the prin-
cipal creditors of the India Company, and possess immense 
fairtures. The poor in Benares are still more numerous, 
owing to the crowd of pilgrims, who come from all parts 
to visit to sacred places. Mr. Hodges, in his "Travels 
in India," informs us, that in examining one of the temples 
of Benares, he was surprised to find most of the ornamental 
parts of Grecian architecture in a building erected on the 
plains of Hindoosan. Benares has been from time imme-
morial the Athens of India, the refuge of the most 
learned Brahmins, and the fest of both of science and literature.

Here, it is probable, whatever remains of the ancient astro-
nomical knowledge and discoveries of the Brahmins is still 
preserved. M. Bernier (Voy. ii. p. 148.) saw, in the year 
1668, a large hall in this city filled with the works of the 
Indian philosophers, physicians, and poets. Sir Robert 
Chambers has described the gith, prospect, and church 
which he visited in 1772. (See Observatorv.) He has more 
lately discovered in this city the "Surya Siddhanta," on the 
principles of which the whole Indian astronomy is founded. 
Several considerable extracts of this work have been tran-
lated by Samuel Davis, esq. to whom this valuable work 
was communicated. It is composed in the Sanscrit language, 
and promises to be a divine revelation, communicated to 
mankind more than two millions of years ago, towards the 
close of the Sutty or Satya Yuga, the first of the four fabu-
ous ages, into which the Hindoo mythologists divide the 
period during which they suppose the world to have existed. 
It appears from what is already known of this book, that 
indeed the fiction and romance which are blended in 
the account of its origin, it contains a very rational and 
clarificate system of astronomical calculation, and several rules 
and tables, for the calculation of eclipses, &c. which seem 
very much to favour the hypothesis adopted by M. Brilly, 
Dr. Robertson, and others, that affirms a very high anti-
quity to the astronomy of the Brahmins. In the rules con-
tained in this work, is included a system of trigonometry, 
-founded on certain geometrical theorems, with which, 
though unknown to Ptolemy and the Greek geomctricians, 
modern mathematicians are well a quainted. For an ac-
count of the astronomical computations of the Hindoos, 
by Samuel Davis, esq. see Asiatic Researches, vol. ii. p. 225, 
&c. 8vo. and for remarks on the astronomy of the Brahmins, 
and an account of the principles on which the Hindoo 
system of trigonometry is founded, by professor Playfair, 
see Edinb. Transf. vol. ii. p. 135. It appears, however, from 
an elaborate dissertation on the antiquity of the Surya Sidd-
hdanta, by Mr. J. Bentley, published in the Asiatic Researches, 
vol. vi. p. 530, &c. that the system, so eagerly applauded 
and referred to by the above mentioned writers to fuch remote 
antiquity, cannot be of a greater age than 731 years; or 
that it was composed about A. D. 1668.

Notwithstanding the science and literature that have been 
cultivated by the Brahmins at Benares, we discover traces 
of superfluous, and even of inhumanity, in some of their cus-
toms, which, it is hoped, the interference of the court of 
justice, established there in 1785, will gradually restrain 
and reform. As the person of a Brahmin is inviolate, no ato-
ment can expiate the crime of occasioning his death. Hence 
originated a practice, which was formerly frequent at Be-
ares, and which in its effects approaches the nearest to our 
caption, or arrest. The Brahmin, who adopts this expedi-
cnt, in order to procure redres, proceeds, armed with a 
dagger or poison, to the door of his adversary's house, where 
he deliberately sets himself down, and threatens to commit 
suicide, if the offender should attempt to pass or molest 
him. He falls with insensible rigour, to which the other 
party likewise submits, and perseveres in his resolution until satisfaclion is obtained. This practice, calledfitting in "Dharna," is not confined to the male Brahmin only; for 
an instance occurred at Benares in 1789, of a widow's re-
curring to this expedient, in order to obtain, in a litigation 
with her brother-in-law, that justice, which neither the 
award of arbitration nor the decision of the court had granted 
her. Both failed pertinaciously during thirteen days, 
when, worn out with hunger, her antagonist at last yielded 
the contest. Another instance occurred in 1793. An inha-
bitant of a district in the province of Benares, lay in Dherna 
before the house of some Rajpoots, for the purpose of ob-
taining the payment of a debt, or a charitable subsistence, 
to which he had a claim; and in this situation destroyed 
himself by swallowing poison. Some of the relations of the 
deceased retained his corpse for two days before the house of 
the Rajpoots, who were thus compelled to forego taking 
subsistence, in order to induce them to settle the Debt on 
the heirs of the deceased Brahmin. This practice is not spe-
cifically pointed out by the shifter, but depends merely on 
the junctor of usage. Another practice of the Brahmins, 
equally
In miles

aged 1582, secondarily called narrow. The town of them occurred for many years, improved even, Benares in 1788; but the ancient and noble were removed by the timely interpolation of

is rather flat, and measures only about nine miles in transect, diameter. Its soil is sandy and barren; but the quantity of a weed constantly driven on shore, is appropriated to meliorate some portions of the land. In one part of the island is an ancient fort called Elvine Nenam fixtures, and several stone monuments are found in different parts of it. It has a harbour for small fishing vessels, and several fresh water lakes, fringed with fish and fowl.

BENBRICK, a mountain of Scotland, in the county of Perth; 12 miles N. N.W. of Crieff.

BENBALBEN, mountains of Ireland, in the county of Sligo; 7 miles N. of Sligo.

BENBERRY, in Geography, the name of one of those islands of Scotland called the Hebrides. It lies between the isles of N. and S. Uist, from the fall of which it is separated by a narrow channel, nearly dry at low water. This island is rather flat, and measures only about nine miles in transect, diameter. Its soil is sandy and barren; but the quantity of a weed constantly driven on shore, is appropriated to meliorate some portions of the land. In one part of the island is an ancient fort called Elvine Nenam fixtures, and several stone monuments are found in different parts of it. It has a harbour for small fishing vessels, and several fresh water lakes, fringed with fish and fowl.

BENCHEEDUO, See Window.

BENCHIES, in the Laws of Court, the senior members of the house, who have the government and direction thereof; and out of whom is yearly chosen a treasurer, &c.

BENCH, See Bank, Bank, &c.

Bench, Amicable. See Amicable.

Bench, King's. See Court of King's Bench.

Bench, Free. See Free-bench.

Bench island, in Geography, lies within the south-east point of what is called South-east bay, in the southern part of New Zealand.

Bench-lands. See Window.

BENCINGERS, in the Laws of Court, the senior members of the house, who have the government and direction thereof; and out of whom is yearly chosen a treasurer, &c.

BENCOOLEN, in Geography, a sea-port town and fort on the northeastern coast of the island of Sumatra, where the English have a settlement and a factory. This is one of the four English possessions, or governments, to which all the other factories are subordinate; the other three are Madras, Bengal, and Bombay. Bencoolen, which is about 2 miles in compass, is known at sea by a high fielder mountain, called the "Sugar Loaf," and rising 20 miles beyond it in the country. Before the town lies an island, within which the ships usually ride, and with this, the point of Sillekar, extending 2 or 3 leagues southward of it, forms a large and conical bay. A convenient river on its north-westiblshing, the pepper, of which the trade of the town chiefly consists, from the inland country; but it is supplied with a convenience, on account of a dangerous bar at the mouth of the river. It is principally inhabited by natives, who build their houses on piles of planks notched. The English, Pottugese, and Chinese, have each an European quarter. The adjacent country is mountainous and woody, and there are many volcanos in the island. As the town stands upon a morass, the air is loaded with vapours, and the mountains are covered with thick clouds, that produce lightning, thunder, and rain. The climate of Bencoolen has proved more sickly and fatal than that of any of the other British settlements, not only to the English, but to all who have been accustomed to live in a pure air. In 1763, upon the conclusion of Manilla to the Spaniards, and the restoration of Bencoolen to the English, many Chinese merchants, with other
their families, quittd Messiah in order to settle under the English government at this place; but the air of this country proved fatal, that most of those Chinese and their families died soon after their arrival. Many Englishmen have also fallen a sacrifice to the temperature of this climate; and, indeed, few of them arrived until they built a fort on a dry elevated situation, at the distance of about 3 miles from the town. This is called Fort Marlborough," where, during the rage of sickness at Bennekoop, the garrison is sometimes very healthy. Tame buffaloes may here be had in great plenty; but fish and poultry are scarce and dear. The soil is a fertile clay, producing high grass; but near the sea it is a morass. N. Int. 8 49'. E. long. 102. See Sumatra.

BENDA, a town of Persia, in the province of Farsian, 160 miles N. E. of Shiraz.

Bend Dexter, in Heraldry. The bend was a saff worn across the shoulder from the Italian la benda; it is one of the nine ordinaries in heraldry, and occupies one-third part of the field when charged and one-fifth when plain; it consists of two equal lines drawn diagonally from the dexter chief to the sinister base of the shield. This ordinary hath more subdiments or diminutives than any of the others, viz. the bendlet, gorget, entily, and ribbon, none of which diminutives can properly be charged.

Bend Sinjir, denotes lines drawn diagonally from the sinister chief, to the dexter base of the shield; it hath not the same diminutives as those of the bend dexter; but according to some heraldic writers, is subdivided into a saff or scroll which is in breadth half that of the bend sinjir; and a baton, or fife, as Upton and Holme call it, containing half the breadth of the saff. Here, however, arises an objection to the admitting the baton to be a diminutive of the bend, sinjir, or as any part of one of the ordinaries. According to many years practice, the baton doth not touch the extremities of the field, nor the extremities of the quarter where the paternal arms are placed, as all the ordinaries and their diminutives constantly do; but on the contrary, is couped, that is, cut short, and so born as a mark of illegitimacy, and not as an ordinary or charge, or any part of the cost for, although some instances are to be met with of ancient arms, where a baton is passed from the sinister chief to the dexter base, over all; and others, where it passes from corner to corner, over the paternal quarter, and not over the other quarters; yet, in every one of those instances, the baton is used as a mark of bad faith, and not either as an ordinary or charge. Hence, therefore, we may fairly conclude, that the baton is not to be deemed as any part diminutive of the bend, but as a mark of illegitimacy; which mark or baton, when granted by princes to their illegitimate children, may be of metal or fur, or both, but, when granted to any under their degree, must be of colour only.

BENDA, in Architecture. See Fascia.

Benda, Francis, in Biography, concert-maister to the late Frederick II. king of Prussia, from the year 1738 to the time of his death. He was one of the most touching and expressive players on the violin in Europe, during the last century. He was a native of Alt Benacly in Bohemia 1709, and a chorister at Prague and Dresden, till he lost his treble voice. There is a very natural and amusing life of this excellent musician, compiled from his own materials, by M. Hiller of Leipzig, but as we have no room for copies of mere amusements, we must adhere to matter of fact. It was not, till he was dismissed as a musician, that he seriously applied to the fiddle to procure him a subsistence; but he knew not when or under what manner; but remembered that, as soon as he was able, he joined a company of swirling Jews, in playing dances about the country; in which, however, there was a blind Hebrew of the name of Lobeid, who, in his way, was an extraordinary player. He drew a good tone from his instrument, and composed his own pieces, which were wild, but pretty; some of his dances went up to A in allfinio; however, he played them with the utmost purity and accuracy.

The performance of this man excited in Benda so much emulation, that he redoubled his diligence in trying to equal him; and not to be inferior in any part of his trade, he composed dances for his own hand, which were far from easy. He often speaks of his obligation to the old Jew for stimulating him to exceed on the violin.

It has often excited our wonder, that in the principal capitals of Europe, wherever there is a synagogue, we generally found a vocal performer or two, who sung in the Italian manner, and in exquisite table, though the rest of the singing in the service of religion, was to the last degree incoherent, rude, and barbarous. Where it was acquired, or by what kind demon this table was inspired exclusively, is not easy to conjecture; but so it was at Paris, Amsterdam, Milan, Venice, Rome, and Naples; and we have had instances at home of exquisite Hebrew singing in our own country.

After various adventures, our young violinist entered into the band of count Uhslefeld at Vienna, with whom he had frequently the advantage of hearing the famous Francichello, who taught the count, and of playing trios with this great musician and his scholars.

Francichello was the most exquisite performer on the bafe-viol of his time. Geminiani related of him, that in accompanying Nicolini, at Rome, in a cantata composed by Alessandro Scarlatti, for the violoncello, the author, who was at the harpsichord, would not believe that a mortal could play so divinely; but said, that it was an angel who had assumed the figure of Francichello; so far did his performance surpass all that Scarlatti had conceived in composing the cantata, or imagined possible for man to express.

At length, Benda was invited by Quantz, the German flute maister to the late Frederick II. king of Prussia, during the time when he was only prince of Prussia, and refided at Ruppin, before his ascension to the throne.

It was by health, that this prince indulged his passion for music, during the life of his father, the late king, who had forbidden him not only to study and practice music, but to hear it. M. Quantz told us afterwards, that it was the late queen-mother, who at this time encouraged the prince in his favourite amusement, and who engaged musicians for his service; but to necesssary was secrecy in these negotiations, that if the king his father had discovered that he was disobeyed, all these sons of Apollo would have incurred the danger of being hanged. The prince frequently took occasion to meet his musicians a hunting, and had his concerts either in a forest or cavern.

Benda still, in 1772, led the king of Prussia's band at the opera, and at his concerts; and could boast of having had the honour of accompanying his majesty, during the 40 years which he had been in his service, in nearly 50,000 different concerts. What an excellent economist of time must his late Prussian majesty have been; who, though his own maister, could spare two hours every day, when he was not in the field, for music!

When we heard the admirable Benda perform, it was an excellent composition of his own, which he played con for- dando; his hand, he said, wanted force sufficient to play without. The gout had long enfeebled his fingers, and age, perhaps, still more. There were, however, fine remains of a great hand, though he was probably always more remarkable
able for feeling than force. His style was truly military, that scarcely a passage could be found in his writings, which it would not have been in the power of the lowest, the rudest, and the slowest, enthusiast to understand. He always labored to show that the forces which he drew from them were powerful. Thus, he acquired this style of writing and public speaking. It might be of importance to musical students to trace and develop. His style was not that of Tamerlane, Venetian, or of that of the head of any one faction, political, literary, or religious, of which, there is little room here; it was his own and formed from that model which had been exemplified by the most excellent orators and philosophers.

BENDALI, in Geography, a town of Africa lying between the countries of Damar and Wario, the capital of Benga. It is inhabited by the slaves of the sultan of Benga. The people are idle.

BENDALI, a town of Perza in the province of Kerma, 120 miles S. of Sirgan.

BENDAR MALANKA, a town of Hindostan, in the circuit of Rajamurthy, situated between the branches of the river Beal, at their outlet into the ocean, 52 miles S. of Rajamurthy. 50 N. E. of Musubulpan, and 358 miles N. E. of Madras. N. lat. 16° 30'. E. long. 82° 30'.

BENDIK, a mountain of Scotland, in the county of Fife, 7 miles N. of Blair Athol.

BENDER, formerly called Issie, and denoting in the Turkish language a pigstye, a fortified town of European Turkey, in Ebraria, tented on the Desleiter. It is celebrated as the place of retreat and residence of Charles XII. of Sweden, when he put himself under the protection of the Turks after being defeated by the Russians at the battle of Pultowa in 1709; but upon refusing to leave their territory, he was attacked, taken prisoner, and removed to Adramile, where, after a year's confinement, he returned freely to his own dominions. It was besieged by the Russians in 1772, and after a resistance of nearly three months, invested and reduced to Panin, the Russian general; and the capture of the fortress was secured by the reduction of the Forts of Buljak and Oetakoff to the Russian fleet. The loss which Bender, in 1772, suffered from the Russians was remarkable, on account of the desperate defence made by the garrison, the carnage which attended its reduction, and the adoption on the part of the besiegers, of that dreadful instrument of modern warfare, the globe of compulsion. The Russian army, commanded by Grinod Panin, opened their trenches on both sides of the river, the 30th July, after which, a furious cannonade and bombardment were begun from all quarters, and vigorously returned from the town. The garrison and inhabitants defended themselves with the utmost bravery: in sixteen days they made seven sorties, with little advantage, but great loss on both sides, and held out for more than two months with unabated courage, even when the defeat of the main army by the Russian general Romanzow seemed to deprive them of every hope of relief. The besiegers in the mean time pushed forward their lines (See Mine) with industry, particularly one of an improved construction lately invented by a French engineer, and which has been since denominated the globe of compulsion. In this labyrinth of mines, interwoven and included one within another, it was maintained, that a certain quantity of gunpowder would cause a greater explosion, and throw up a greater portion of earth than in any other method. The globe of compulsion being brought to perfection, was charged with the amazing quantity of 1,000 cb. of powder, and the garrison continuing obstinately to refuse every proposal of surrender, count Panin prepared for a general assault to take place on the night of the 27th of Sept. The firing of the mine was to be the signal of attack, and it was hoped, that besides ruining the outworks, it might make a breach in some of the principal walls of the town, and bury the defenders in the ruins. The Russians themselves were impressed with the consequences, as it was not easy to define how far the effects of such an enormous mass of powder might extend, and two troops destined to make the assault in that quarter were stationed at a considerable distance. In fact, the globe of compulsion, which was blown up at 10 o'clock at night, with a most horrid concussion, shook the whole of Feraistan, and amidst the amazement and confusion excited by this dreadful phenomenon, the attack began in three places with great fury. Nothing could restrain the impetuosity of the Russian soldiers, who rushed forward at the main point of assault. The double ditches before the glais were passed and filled up; the double row of palisadoes before the covered way destroyed; the main ditch furmouted, and all the outworks carried in succession. The body of the place could not oppose an effectual resistance to enemies who had already overcome such difficulties; the Russians got over the walls in every quarter, and a new and dreadful contest commenced in the dark, as well among the fortifications, as in the streets, lanes, and palisades, and from the houses. The desperate resistance of the garrison and inhabitants obliged the Russians to set fire to the town, which they did in several places at the same time, but the contest nevertheless continued, amidst the ruins and the blazing houses, for the whole of the night, nor seemed decided, but by the almost total extermination of the Turks. At eight in the morning, the seraskier, with most of those that survived, retired to the citadel, which the flames had already reached. A select body of 1000 cavalry and 500 infantry, attempting to cut their way through the besiegers, were surround and cut off to a man. As for the seraskier, after demanding in vain an honourable capitulation, the fury of the flames, which had now reached every part of the citadel, obliged him to surrender with his followers, as prisoners of war. The fire raged for three days, and could not be restrained till it had consumed the whole city. The total number of prisoners, including the inhabitants of all ages, amounted to 11,739, of whom 5,574 were janizaries and officers, with their commanders, besides the seraskier and two bailoys. The residue of a population of 30,000 souls, of whom the half were fellos, perished in the flame. The Russians found in the place a vast quantity of arms, bombs, grenades, gun-powder, and other military stores, besides above 200 pieces of brais cannon, and 85 mortars. They also took 4 horse-tails, 14 batons of command, and 40 pair of colours.

Bender, hardly recovered from this blow, was again taken, but not till after a long siege, by prince Potemkin, in November 1789. It was, however, restored to Turkey by the subsequent treaty of peace in 1792. Bender is reckoned to contain between 10 and 12,000 inhabitants; and its governor is a bailaw. It is distant 100 miles W. of Otehakov or Oezakov, and as many miles S. E. of Jaffy. N. lat. 47° E. long. 29° 20'.

Bender-Alasaff. See Gombran.

Bender-Congo. See Congo.

Bender-Delam, a town of Perza in the province of Far-filia, on the north coast of the Perzan gulf; 130 miles W. of Schoras.

Bender du Ser, a town of Perza in the province of Kerma, 160 miles S. of Sirgan.

Bender Ibrahim, a town of Perza, at the mouth of the river Ibrahim, in the Perzan gulf.
BENDER MAFFIA, or BENJAR-MAFFIA, the capital of a kingdom of the same name in the southern part of the island of Borneo, possessing a good harbour, formed by the river Benjar, flowing from the centre of the country almost due south. S. lat. 2° 47'. E. long. 113° 50'.

BEND & RICHER, a town of Persia, on the north coast of the Persian gulf, in the province of Farsitan; 160 miles S.S.W. of Shiras.

BENDER RIGK, a city of Persia, in the province of Kerman, on the north-east coast of the Persian gulf. It is encompassed with walls in an indifferent state, and lies north from Abuscheh or Busheer. The petty state, of which this is the capital, comprehends several other places in Kermeer, which render its sovereignty in some measure dependent upon Kerim Khan. The Arabs of this principality are chiefly addicted to a sea-faring life; the Persians inhabiting its back parts are husbandmen. The reigning family of Bender Rigk is of the Arabian tribe of Benti Saab, and produces originally from Oman; but the grandfather of one of its princes, having become a Schiite, and married a Persian lady, this family is no longer reckoned by the Arabs among their genuine nobility. A late reigning prince of Bender Rigk, Mir Mahenna, was notorious through the country for his vices and cruelties, as one of the most execrable tyrants that ever existed. He caused his servants to murder his father in his own presence, because the old man had a prodigality for his eldest son. He killed his mother, because she reproached him for his crimes. He caused his brother, and sixteen other relations, to be assassinated, that he might establish himself in the undisturbed possession of the throne. He drowned two of his sisters, because a neighbouring prince had asked one of them in marriage. He expostulated with all the children that happen to be born to him. In 1765, this detestable monster was under the age of thirty years. After having been twice captured by Kerim Khan, he recovered his liberty, and immediately upon his return to his own dominions began to pillage the caravans which travelled between Schiras and Abuscheh. He seized upon the sea, and to invade piracy. Kerim Khan had unsuccessful siege to his capital; and when he sent in 1765, to demand payment of the tribute due for his possessions in Kermeer, Mir Mahenna treated the officer deputed for this purpose, and caused his beard to be shaven. Upon which Kerim Khan sent against him a powerful army, which conquered Bender Rigk and all its territories. Mir Mahenna, however, had previously retired with all his troops, and some of his subjects, into a desert, called Khueiri, where he waited till the Persian army retired from his country. As soon as they were gone, he left the island, expelled the garrison from Bender Rigk, and regained possession of his dominions. The tyrant had abandoned himself to drunkenness; and had begun to exercise such cruelties upon his troops, that he cut off the noses and ears of some of the principal officers; and yet so attached to him were his soldiers, that, in the period of his exile, he took the title of Karek from the Dutch. Bender Rigk is distant 132 miles W.S.W. from Schiras. N. lat. 29° 26'. E. long. 51° 20'.

BENDIDA, SEBEDA, in Antiquity, a colony of the Athenians on the twenty-first day of the month Thargelion, in honour of the goddess Diana. The word is formed of βεντισα, a denomination of Diana, according to Schedo, or of the moon, according to Suidas, which amounts to the same. The Bendida were held in the Piraceus, and bore some resemblance to the bacchaeans.

BENDING, in a general sense, denotes the reduction of a straight body into a curve, or giving it a crooked form. M. Bernoulli has discussed the bending of strings, or elastic bodies. (See Strings.) M. Amontons gives several experiments concerning the bending of ropes. (See Rope.) The friction of a rope, bent or wound round an immovable cylinder, is sufficient, with a very small power, to sustain very great weights. Mem. Acad. Sci. 1753, 1755, 1697. Divers methods have been contrived for bending timbers, in order to supply crooked planks, and pieces for building ships. M. Dalmeny ingeniously enough proposed to have the young trees bent, while growing in the forest. The method of bending planks by a hand-heat, now used in the king's yard at Deptford, was invented by captain Cumberland. Phil. Trans. No. 571. p. 75.

The bending of boards, and other pieces of timber for curved works in joinery, is effected by holding them to the fire, then giving them the figure required, and keeping them in this figure by tools for the purpose.

A method has been lately invented and practiced for bending pieces of timber, so as to make the wheels of carriages without joints. See Wheels.

The use of bending wood for the purpose of bending it is evidently to supply it, so as to make it capable of being brought, the more easily into the form required, as well as to adapt it for retaining that form, after the prejudice by which it was originally reduced to that figure has been removed. By means of bending, heat and moisture are applied to it. If it has already moisture enough, as in the case of green wood, heating in any other way, without the modification of steam, may be sufficient; or the effect may be produced by heating and wetting at the same time. The result of bending by heat and moisture, has been practiced from time immemorial in Ruris, and applied to wheels, and some other sorts of wood-work. In England,uchs, or similar modes, have been applied for a long time in the dock-yards, and also under a patent granted to Mellis, Jacob and Young, but now expired, in the construction of wheels; and by Mr. Livan, under a patent still in force, to circular wooden fishes, foills, fan-light, door moldings, and hand-rails for chairs; and, without patent, by cabinet and chairmakers in general. When the thickness required, compared with the sharpness of the curvature, is such as to render it impracticable to bend the piece entire, it may be divided for this purpose into different thicknesses, in the manner proposed by Mr. Samuel Bentham, under a patent obtained in 1793, for methods of working wood, metals, &c. with very little, if any, loss of strength; and if the firata are connected by proper fastenings, with a degree of strength far superior to what a piece of the same dimensions would possess, if grain-cut. In this mode, curvature may be given to the wood-work of all sorts of engines, and of carriages of all sorts; to all timbers designed for receiving a carved shape and employed in buildings; and to any of the timbers, that may be used in the construction of boats or vessels, not excepting lips of the largest class. Thus, it is said, a very considerable saving with respect to quantity and value might be obtained, whilst at the same time the strength would be augmented.

In the operation of bending, care should be taken, if as fast as possible, so as to force any piece to adapt itself to the curvature of the mould to which you are bending it, you apply a pressure, by means of screws or wedges, &c. to that part, and along the whole piece, particularly at its sharpest convexities; so that the piece may not be only kept to its proper curvature, but the exterior fibres be prevented from starting out. In forming ship-rails of all shapes and sizes, so as to supercede the use of crooked-grown timber, which is straight would be cheaper, Mr. Bentham proposes to use one or other of the two following methods, which, he says, would effectually answer the purpose. First, having
lons and a mould or block to the shape of the rib in question, completing the whole of its extent from top to bottom, for, on the face of the bend, bend the components parts suitably to the shape of the block, and fasten them together so that, when the wood rib in its curvature, support, or hold, in those parts where the frame is a bending to change, and to convey the rib, to enter with its hands, it shall have sufficiently conferred to be curbed, by the connection given to it with the plan, beams, and other parts of the ship. Or, secondly, you may form the half of the ship first, without timbers, beginning to build as if were by the planks, using only a few of temporary moulds or false ribs, to determine the position of, and give a temporary support to, the planks. When this is done, insert the timbers afterwards, pressing and bending the component parts successively into their places and removing the false ribs, in proportion as the real ones are put together and secured. Or, thirdly, instead of the false ribs, you may inflect a sufficient number of real ribs, put together as in the first method, and then proceed with the planks and the roll of the ribs, as in the second method. As to bending, it may, in this case, be performed with or without the assistance of fluming, and with or without the use of the expedient of dividing into thicknesses according to the degree of curvature may require. In chinker-work built boats, the ribs have been four times inserted by bending them to the planks, but this is only done in boats of the slightest class. See Ship.

Bending, in the S a Language, denotes following one rope to a knot, or to different objects, and fastening a failure to its yard.—They lay, bend the cable, when it is to be made fast to the ring of the anchor.—To bend two cables, signifies to tie them together with a link, which, though less than a splice, is a nearer case. To unbind the cable, is to loosen it from the ring of the anchor; which is done when a ship is design to be long at sea. To bind a main sail, is to make it fast to its proper yard or stay.

BENDLET, in Heraldry, is the first diminutive of the bend, and signifies one half of the breadth of the bend.

BENDOAN, in Geography, a small island, 5 leagues S.W. from cape St. Martin's, on the coast of Spum, in the M. d'America, which lies to the south of the west of Yylica island. It is south-east from Alice, and forms the limit of the bay of Calp, or Caria, of which the mouth is called the south-west limb.

BENDORAN, a mountain of Scotland, in the county of Argy.

BENDORF, a town of Germany, in the circle of Weil-heim, and county of Bary, and in a profligate S. E. from the Rhine, into which the river Saun empties itself at this place. It is inhabited by Roman catholics and Lutherans, each of whom enjoy the public exercise of their religions.

BENDORF, a town, on the west coast of Ireland, and is the southernmost of the roads between Ballybanamon and the island of Mayo, or Enniscowry, as Enniscowry is the more western. In both, ships may ride with safety.

BENDS, in a ship, are the same with masts, or masts, which are the outward, timber of a ship, on which men rest their feet in climbing up. They are reckoned from the water, the first, second, and third bends; they help much to strengthen the ship, and have the beams, knees, and fastenings bolted into them.

Bends denote also the small ropes used to confine the cloth of a cable. For a common or first bend, pass the end of the rope through the eye of another rope, then round and underneath the standing part; but, to prevent its jamming, pass it round again under the standing part. The sheet of a haul has the end passed up through the eye, then round the eye, and underneath the standing part. The rope of a halyard is passed into a boat, and has the end flapped. Bends of a halyard are passed as a seizing. For a carrick bend, lay the end of a rope or halyard, across its standing part; then take the end of another rope, or halyard, and lay it under the first standing part, at the clew, and over the end; then through the bight, under the standing part; then over its own standing part, and underneath the bight again; it is often used in haste to form a greater length, or to warp or tow with. For a fig-of-leaf bend, take a round turn with the end of a rope, or halyard, through the ring of an anchor, and pass the rope through both parts, and another half bight round the standing part; then slip the end. Halyard bend is a hitch, with a throat and end feizing made on one end, and the end of another hawser received through the bight, and hitched with a throat and end feizing. Temporary bend is commonly made to receive through large blocks, thus: lay three fathoms of the end of two hawsers together, and put on a round feizing in the middle; then reverse the ends to each standing part, and put on a slight feizing between each end and the middle, and a round feizing on each end. See Plate, Ship-Rigging.

BENDWAYS, or in Bend, in Heraldry, is such charges as are placed so as to occupy that part of the escutcheon to which the bend is allotted; or such as are placed obliquely, resembling a bend.

BENDY, a term used in Heraldry, when the escutcheon is divided bendways into an equal number of partitions; the field may be bendy of eight, ten, twelve, or more.

Barry-Bendy. See Barry.

Counter-Bendy. See Counter.

Poly-Bendy. See Paly.

BENE. See De Brbe Effi.

Bene, in Geography, a town of Italy, in the principality of Piedmont, and district of Monfoco, defended by an ancient castle, and containing about 4000 inhabitants; 28 miles south of Turin.

Beneaped, in the Same Language, is said of a ship, when the water does not flow high enough to bring her off the ground, out of the dock, or over the bar.

BENICARLO, Binacional, or Bincardo, in Geography, lies north-west from Penicola point, on the coast of Valencia, in Spain; it the Mediterranean, faced on a bay to the north-east of the gulf of Valencia. It has no good road; so that ships usually lie at Penicola.

Benedetto, in Biography. See Castiglione.

Benedetto, St., a town of Italy, in the duchy of Mantua, 15 miles S.S.E. of Mantua—Alto, a town of Italy, in the marquisate of Gozzogno, 12 miles east of Bene.

Benedicite, in Ecclipsographical History, is a name given to the hymn, or song of the three children in the fiery furnace; by reason of its beginning with the words, "benedicite omnia opera Domini." The use of the benedictio is very ancient; it appears to have been sung in all the Christian churches as early as St. Chrysostom's time.

Benedict, St., in Biography, founder of the monastic order of Benedictins, was born in the province of Nursia, in Italy, about the year 480. After having been educated at Rome, he retired, at the age of fourteen, to Subiaco, about 40 miles from that city, where he secluded himself from the world in a cavern for several years, till at length he was discovered by the monks of a neighbouring monastery, and chosen for their abbot. Dissatisfied, however, with their manners, he withdrew from their society to his solitude,
Benedict, a name assumed by several of the popes. The first of this name, called by the Greeks Bonafus, was advanced to the pontifical chair in 574, at the period when the Lombards overran Italy, and fixed their seat in it under Alboin; and he is said to have died after four years, in consequence of the grief occasioned by their ravages. Benedict II. was elected in 683, and distinguished by his learning and virtues. He died in 685, and obtained the honor of canonization. Benedict III. was advanced to the pontifical in 855, and by the firmness of the Roman clergy, supported on the papal throne in opposition to Amalarius, which he occupied with mildness, piety, and charity. In his time, Ethelwold, king of the west Saxons, visited Rome with his son Alfred. Two epistles of this pope are extant. Benedict IV., was raised to the papal chair about the year 900; and died with a good character in 903. Benedict V. was elected pope in 904, and although he was a man of extraordinary learning and sanctity, he was stripped of the pontifical and priestly dignity by the authority of the emperor Otto, and sentenced to exile; upon which he retired to Hamburgh, where he died.
BENEDICT.

... died in 952 or 966. Benedict VI. was elevated to the papacy in 972, and being seized by a faction which attacked the Lateran palace, he was imprisoned in that city. In 974, Benedict VI. was elected in 975, and after a prudent government of nine years, died in 984. Benedict VIII. was made pope in 1012, but displaced by Gregory an anti-pope, and afterwards restored. Under his pontificate Henry, king of Germany, marched to Rome; and Benedict crowned him emperor under the title of Henry II., and his queen Cunegunda, empress. In 1018, this pope, collecting his dependents, defeated the Saracens, who made a defeat at Luni in Tuscany, and put them all to the sword. He also waged war with the Greeks, who ravaged Puglia. In 1019, the emperor bestowed on him and his successors the newly erected fee of Bamberg. He died, after having approved himself a great friend to the monks, and zealously for the order and discipline of the church, in 1024. Benedict IX. succeeded his uncle John XIX. in 1023, in his 18th year; and was expelled from his fee on account of his vices, but restored by the emperor Conrad I. and after a life of various expulsions and reconstructions, fold or resigned the pontificate in 1049. He refumed it, however, occasionally under succeeding pontiffs, and finished his scandalous career in 1054. Benedict X. was elected to the papal throne by a party in 1058, and after holding the fee nine months and twenty days, was deposed and excommunicated. Benedict XI. was the son of a herdsman, or of a notary, at Trevigi, in the state of Venice, became a schoolmaster, general of the Dominicans, and cardinal bishop, first of Sabina, and afterwards of Oliana, and succeeded pope Boniface VIII. in 1303. He exerted himself by various efforts for the good of the church, but death terminated his labours on the ninth month of his pontificate, A.D. 1304. This pope conducted himself with moderation, and behaved with singular respect to his mother and relations; but would not suffer any interference on their part in public affairs. He wrote commentaries on the books of Job, the Psalms, St. Matthew, and the Revelations, as well as a ritual, and some sermons. Benedict XII. was the son of a miller in the county of Foix, and after several subordinate ecclesiastical promotions, was advanced to the papal see in 1324. He was skilful in law and theology, and distinguised by his probity, but little versed in politics. Wishing to restore the apostolic see to Italy, but obliged by the circumstances of the times to remain at Avignon, he laid the foundation of a magnificent and strongly fortified palace, which, however, he did not live to finish. He observed a laudable caution in the creation of cardinals, and the appointment of benefices; and he exercised singular self-denial with respect to his own relations, observing, that "James Toucher (his family name) has relations, but pope Benedict none."

As he was industrious and active in reforming discipline and morals among several religious orders that were become corrupt, he incurred the ill-will and enmity of the monks. During his efforts for reforming the kings of England and France, he was treated with ill-favour, which terminated his life in 1324. Among his printed works are his "Decretum de animabus capitatorum," and his "Constitutiones de reformis variorum rerum orders." He left also sermons for the chief festivals of the year, commentaries on the Psalms, letters, and poems. Benedict XIII. was of a noble family, being the eldest son of the duke of Gravina, in the kingdom of Naples, and born at Rome in 1649. Against the views and wishes of his family, he took the habit of the Dominican order in 1667, and applied with diligence to the studies and duties of his office, preferring the humble life of a monk to that of a superior station. However, by the alliance of his family with that of the pope Clement X., he was promoted, against his inclination, to the cardinalate in 1672; and after several successive advancements to different fees, in which he maintained the character of an exemplary Prelate, he was elected to the papacy in 1724, and constrained to accept it against his own remonstrances. In the exercise of his office, he laboured incessantly in repressing the luxury of the pontifical court, and in correcting the licentiousness of the clergy; but he was thwarted in his projects by the Jesuits, on account of his attachment to the Dominican doctrine concerning grace and predestination, which left them all. His well-meant attempts to unite all Christian tenants in one church and faith, manifested a greater degree of charity, than of discernment and knowledge of the world. Avoiding all pomp connected with its high station, and restricting the expenses of his own table to 5s. per day, in the difufe of wine and animal food, he lived in the Vatican like a monk in his cloister. Nevertheless, the doors of his palace were always open to the poor, and he was ever ready to hear their complaints, and to the utmost of his power to relieve their distresses. Divesting himself of all the marks of sovereignty, and willing even to dismiss his guards, he frequently went out in the evening in the most private manner, for the purpose of visiting the sick. He closed his pontificate of six years, in 1730, at the age of 86 years. His sermons, poems, and other writings, together with his bulls, were published at Rome in 5 vol. fol. in 1728. Benedict XIV. was descended of the noble family of Lamberti, at Bologna, and born in that city in 1675. After several previous promotions, he received a cardinal's hat in 1728; and from the archbishopric of Bologna, to which he was nominated by Clement XII. in 1731, he was advanced in 1740 to the papal see. Possessing a grace of temper, united with profound learning, an elegant style, liberal sentiments, and great goodness of heart, he was singularly amiable; and as he diminished the number of festivals, abolished idle ceremonies, and manifested a dislike of superfluous practices and simoniacal frauds, he was re-illuminated by some of his enemies as a "protestant pope." As a munificent patron of literature, he founded academies at Rome, bestowed benefactions on that of Bologna, corresponded with, and rewarded learned men at home and abroad, caused a meritorious line to be drawn, retired from the duft the celebrated Egyptian oblik, called that of Sesostris, and adorned Rome with various other monuments of antiquity. Fond of the pleasures of literary retirement, and of occasionally enjoying the mirth of the lower classes, his aversion to buffoons was insurmountable, and he frequently lamented the drudgery and fatigue of his official situation. Attached to life, he dreaded the symptoms of dissolution; and, as it were, confiding in the prayers of the Jesuits for his life, he would not consent to sign the bull for the reform of their order in Portugal, till he was absolutely given over. On the king of Portugal he conferred the title of "his most faithful minister." He governed the church with great wisdom, and manifested on all occasions a strong desire of conciliating those differences with regard to doctrine by which it was divided. After a pontificate of 28 years, he died in 1758, at the age of 89 years. His works have been published at Rome in 12 vol. 4to; and they display a greater degree of profundity and critical application, than his levity and factious disposition would lead one to expect. Pope's Hist. of the Popes. Mofheim's Eccl. Hist. Nov. Hist. Iiil.
ryland, on Fratunet river; opposite Mackall’s ferry; 30 miles southeaft from the Federal city.

BENEDICTIN, or BENEDICTIN ORDER, in Ecclesiastical History, is an order of monks, who professed to follow the rule of St. Benedict, which he formed only for the Celibates, or for those who live in a monastery under the direction of an abbot.

Having given instructions as to the qualifications and duty of the abbot, he proceeds to recommend to the monks obedience, silence, and humility; to note the hours for divine service by day and night, as well as the order and manner of performing it; and to specify the punishments that were to be inflicted on offenders. These punishments were to be excommunication or a separation from the fellowship of the brethren, at table or at prayers; the chastisement of the more disorderly with rods; and expulsion from the monastery. He further states the mode of their admission, the dress they were to wear, and the labour in which they were to be employed. From his rule, which is still extant, we learn that it was not his intention to impose it upon all the monastic societies; for he expressly excludes the Anachorists, who, having learned the exercises of a monastic life in a convent, retired separately into deserts, the Sarabantes, who live two or three together in a cell, and the Gyratory, who removed from one monastery to another without fixing anywhere. It was his purpose to form an order, whose discipline should be milder, their establishment more solid, and their manners more regular, than those of other monastic bodies; and whose members, during the course of a holy and peaceful life, were to divide their time between prayer, reading, the education of youth, and other pious and learned labours. However, in process of time, the followers of this celebrated ecclesiastic degenerated very lamentably from the piety of their founder, and lost sight of the duties of their station, and the great end of their establishment. Having acquired immense riches from the devout liberality of the benevolent, they sunk into luxury, intemperance, and sloth, abandoned themselves to all sorts of vices, extended their zeal and attention to worldly affairs, took part in political cabals and court factions, made a vast augmentation of superfluous rites and ceremonies in their order, to blind the multitude, and supply the place of their expiring virtue; and among other meritorious enterprises, laboured most ardently to swell the arrogance, by enlarging the power and authority of the Roman pontiff.

This new order made a very rapid progress in the west, and, in a short interval of time, arrived at the most flourishing state. In Gaul, its interests were promoted by Maurus; in Sicily and Sardinia, by Placidus; in England, by Augustin and Mellitus; in Italy, and other countries, by Gregory the Great, who himself is reported to have been for some time a member of this society; and in Germany it was afterwards received by the instrumentality of Boniface. This sudden and amazing progress of the new order was ascribed by the Benedictins to the wisdom and fanaticity of their discipline, and to the miracles wrought by their founder and his followers. But upon a more attentive view, the impartial observer will be convinced, that the protection of the Roman pontiffs, to the advancement of whole grands and authority the Benedictins were most fervently devoted, contributed much more to the elevation and influence of their order than any circumstances, nay, than all other considerations united together.

The Benedictins are those properly called monachi, monks; the other orders are better denominated friars, or religious. In the canon law, the Benedictins are called Black Monks; being distinguished from the other orders by the colour of their habit, and not by the name of their patriarch St. Benedict. Among them they were formerly also denominated Black Friars. The Benedictins wear a loose dark gown, with large wide sleeves, and a capuche on their heads, ending in a point behind. The lift of saints of the Benedictin order is very ample; but they are accursed by Baromus, and many other writers, of putting many in the lift who were never of the order. For six hundred years after the erection of the Benedictin order, most of the European monks were followers of this rule; whatever other names they went by, Cistercians, Cistercians, Grandimontes, Premonstratenses, Chinhus, &c. they were but different branches of the Benedictins, till about the year 1520, when the Dominicans and Franciscans took new rules. Holpina reckons no less than twenty-three religious orders that sprang from this one. According to the Benedictin computation, there have been of this order 24 popes, 200 cardinals, 7000 archbishops, 100,000 bishops, 15,000 abbots, 40,000 friars, 40,000 confessors, above 5000 martyrs and apostles, who have converted 30 provinces to the Christian faith, besides emperors, kings, &c. This order has produced a great number of eminent writers and learned men.

The Benedictins, though but one order, are divided into several congregations, which have their peculiar customs and observances different from the rest. Each of these is subdivided into provinces, which have their general chapters. This order is said to have been brought into England about the year 996. The English congregation, which had been filled from the time of the mission of St. Aulfin, was destroyed under Henry VIII., and by degrees reduced to one single man, father Buckley; who, in 1667, procured a re-establishment of the congregation at Douay, in the Netherlands, where it still subsists in a kind of dependency on that of St. Vallaldolid in Spain. At the general chapters, they chuse provincials, with their assistants, for each of the provinces of Canterbury and York, who have jurisdiction over the monastic officials employed therein. They are governed by a president-general, and three definitors, chosen every three years. At their admission they make a fourth vow, viz. that they will go to the mission in England, and return when their superiors think fit.

Benedictin Nuns, are religious women, who embrace the rule of St. Benedict.

BENEDICTION, in a general sense, the act of blessing, or giving praise to God, or returning thanks for his favours. Hence also benediction is still applied to the act of saying grace before or after meals. Neither the ancient Jews, nor Christians, ever ate without a short prayer. The Jews are obliged to recite a hundred benedictions per day; of which, eighty are to be spoken in the morning. Vitring. de Synag. Vet. lib. iii. Rabbi Nehemiah Baruch, in 1688, published a discourse on the manner wherein the ferial benediction is to be pronounced. In the synagogue of Ferrara, it is rather sung than spoken. Among the ancient Jews, as well as Christians, benedictions were attested with the imposition of hands; and Christians, in process of time, added the sign of the cross, which was made with the same hand, elevated or extended. Hence, in the Romish church, benediction was used to denote the sign of the cross, made by a bishop or prelate, from an idea that it conferred some grace on the people. The custom of receiving benediction by bowing the head before the bishop, is very ancient, and was so universal, that emperors themselves did not decline this mark of sublimity. Under the name benediction the Hebrews also frequently understand the presents which friends make to one another, in all probability because they are generally attended with blessings and
and compliments, both from those who give and those who receive them.

Benefiction, Nuptial, the external ceremony performed by the priest in the office of marriage. The nuptial benediction is not essential to, but the confirmation of a marriage in the civil law.

Benefiction, benetic, benedicito beneficio, is the viaticum given to dying persons. The pope begins all his bulls with this form: "Saltem et apollinare benedictionem."

Benefiction, regular, that conferred by abbots on their monks, or by a prior on a junior.

Beneficia prioris, to be deprived of benediction, was a kind of punishment inflicted on monks, whereby, when the rest received the abbot's blessing, the offenders were dismissed without it.

Benefiction is also used for an ecclesiastical ceremony, whereby a thing is declared sacred or venerable. In this sense benediction differs from consecration, as in the latter union is applied, which is not in the former. Thus the choice is consecrated, and the pix blessed, as the former: not the latter, is ass tossed; though in the common usage these two words are applied promiscuously. The spirit of piety, or rather of superstition, has introduced into the Roman church benedictions for almost every thing. We read of forms of benedictions for wax-candles, for bouquets, for ashes, for church-vessels, and ornaments; for flags or censers, arms, fruit-fruits, hones, flags, patched eggs, cillum, or the hair-cloth of penitents, church-yards, horses, moles, &c. which are sprinkled with holy water.

Benediction of Arms, was a sort of public consecration of the weapons and ensigns, before the entering on a war, by a formula of words, and ceremonies appointed for that purpose.

Benedictional is liber, an ancient churchbook, containing the forms of the divers sorts of benedictions given by bishops, priests, &c. Such was the benedictional liber of Gregory the Great, described by Lanciani.

Benedictum, an epithet, formerly given to lenient or gentle operating medicines, more especially rhubarb. In this sense it is used, in some dispensatory writers, benediction bullionem used for lenitive elecution. Though in others, benedicta laxativa, or the blistered laxative, denotes another cafy purge, made up of turpitude, daqammenium, purgans, hermosclyntch, anime-feeds, fennel-seeds, fat gomazon, and honey. Salcido also gives the appellation aqua benedicta to his eucal; and Myllwood does the same to his aqua forte, or water of wild thyme. Some have called the philosopher's stone lapis benedicent.

Benedictionum Visum. See Visum.

Benedictus Cardo. See Thistle.

Beneditto Saco. See San Blessed.

BeneFaca, in Geography, a town of Spain, in the province of Valencia, 10 leagues from Valencia.

Beneficce, Beneficium, in the feudal system, is a term applied to those portions of land which the kings and churchmen bestowed on their adherents. As long as they had no fixed property in land, they could only bestow an house, a stock of armour, or such like recompence, on those who in peace or war were attached to their person, and devoted to their service. But upon their deserting the country which they conquered, and when the value of property came to be understood among them, they conferred upon their followers the more substantial recompence of land. Accordingly the term benefice was the principal name, and most familiar form of the feudal position. These grants were called "benefice," because they were gratuitous donations; and they were also called "honours," because they were regarded as marks of distinction. What were the services originally exacted in return for these "benefices," cannot be determined with absolute precision; because there are no records to ascertain. M. de Montefiquieu (Sp. Laws, b. iii. c. 3. & 16.) considers these "beneficia" as fees, which originally subjected those who held them to military tenure. M. de Mably (Observ. sur l'Histoire de France, i. 335.) contends, that such as held them were at first subjected to no other service than what was incumbent on every free man. But when it is considered, that alienable property subjected those who possessed it to serve the community, it is reasonable to conclude, that these "beneficia" subjected such as held them to personal service and fidelity to him from whom they received these lands. They were granted originally only during pleasure. (See Montel, ubi supra, and Du Cange voc. Beneficium and Feudum.) But the possession of benefices did not continue long in this state. A precarious tenure during pleasure was not sufficient to satisfy those who held them, and to attach them to their superior lord; and, therefore, they soon obtained the confirmation of their benefices during his.

(Du Cange Gloss. voc. Beneficium.) After this it was easy to obtain or extort charters rendering "beneficia" hereditary, first in the direct line, then in the collateral, and at last in the female line. Leg. Langob. lib. iii. vii. viii. Du Cange.

It is not easy to account for the precise period when each of these changes took place. M. de Mably (ubi supra, tom. i. p. 103—162. 329.) conjectures, with some probability, that Charles Martel first introduced the practice of granting "beneficia" for life; and that Louis le Debonnaire was among the first who rendered them hereditary. Mabillon, however, (De Re Diplomatica, l. vi. p. 353.) has published a plactum of Louis de Debonnaire, A.D. 562, by which it appears, that he still continued to grant some "beneficia" only during life. And in 889, Odo, king of France, granted lands to Ricaboda, "for his faithful service, and to the church," during his own life; and if he should die, and a son were born to him, that right was to continue during the life of his son. This was an immediate step from mere life to mere life, and from hereditary to the perpetuity. While "beneficia" continued under their first form, they were held only during pleasure; he who granted them not only exercised the "dominium," or prerogative of superior lord, but he retained the property, giving his vassal only the usufruct. But under the latter form, when they became hereditary, although feudal lawyers continued to define a "beneficia" as agreeable to its original nature, the property was in effect taken out of the hands of the superior lord, and lodged in those of the vassal. At length the word "feudum" came to be substituted in the room of "beneficium," but Muratori observes (Antiq. Med. X. v. 1. p. 594.) that no influence of this kind occurs in any authentic charter previous to the eleventh century; and Dr. Robertson (Hist. Ch. V. vol. i. p. 269.) informs us, that a charter of king Robert of France, A.D. 1008, is the earliest deed in which he has met with the word "feudum."

Beneficce, Beneficium, in an Ecclesiastical Sense, a church endowed with a revenue for the performance of divine service; or the revenue itself, affixed to an ecclesiastical person for life, in return for his performing the service of the church.

All such preferments, except bishoprics, are called benefices; but they must be given for life, not for years, or at will; and all benefices are, by the canons, sometimes called dignities. But we now observe a marked distinction between benefice and dignity, by applying the word dignity to bishopric.
and secular. Regular or titular benefits are those held by a religious, or a regular, who has made profession of some religious order: such are abbeys, priories conventional, &c. Or rather, regular benefice is that which cannot be conferred on any but a religious; either by its foundation, by the institution of some superior, or by prebendation. For prebendation, forty years possession by a religious makes the benefice regular. Secular benefices are those which are only to be given to secular priests, i.e. to such as live in the world, and are not engaged in any monastic order. All benefices are reputed secular, till the contrary is made appear. They are called "secular benefices," because held by seculars; of which kind are almost all curacies. Some benefices, regular in themselves, have been secularised by the pope's bull.

A Benefice in commendam, is that, the direction and management whereof, upon a vacancy, is given or recommended to an ecclesiastic for a certain time, till it may be conveniently provided for. See COMMENDAM.

Benefice, Possession of a. See Possession.

Beneficiarii, in Roman Antiquity, denote soldiers who attended the chief officers of the army, being exempted from other duty. Beneficiarii were also soldiers discharged from the military service or duty, and provided with "benefice" to subsist on. These were probably the same with the former, and both might be comprised in the same definition. They were old experienced soldiers, who, having served out their legal time, or received a discharge, as a particular mark of honour, were invited again to the service, where they were held ingratia eam, exempted from all military drudgery, and appointed to guard the standard, &c. These, when thus recalled to service, were also denominated eos suis; and before their recall, eterni.

Beneficiarii was also used for those raised to a higher rank by the favour of the tribunes, or other magistrates. The word "beneficiarii" frequently occurs in the Roman inscriptions found in Britain, where consulatus is always joined with it; but besides beneficiarii consulatus, we find in Gratian beneficiarii tribuni, praefecti, legati, praefecti, praefuncti, &c.

Beneficiary, in a general sense, something that relates to benefices.

Beneficiary, beneficarius, is more particularly used for a benefited person, or him who receives and enjoys one or more benefices.

Beneficiary is more particularly used among Roman Writers, for a person exempt from public offices. In which sense, beneficiarius is contradistinguished from municipis: It also denotes, in Middle Age Writers, a feudatory or vassal: and it is also used for a clerk or officer, who kept the account of the beneficia, and made the writings necessary for it. The same denomination was likewise given to the officers who collected the rents and duties belonging to the fiscus.

Beneficio. See Deprivation à Beneficio.

Beneficio, Suspendit à. See Suspensio.

Beneficio primo ecclesiasticum habendo. See Primo.

Beneficium, Sebastian, in Biography, an eminent English divine, was born at Pordenon, in Gloucestershire, in 1559, and educated at the university of Oxford, where he occupied the chair of Margaret professor of divinity for 14 years with great reputation. Towards the close of his life he retired to his rectory of Meysey Hampton, near Fairford, in his native country, and there died in 1630. Dr. Benefield was a most eminent scholar, disputant and divine, and particularly well versed in the fathers and schoolmen, that he had not his equal in the university. In his theological opinions he was a rigid Calvinist; and in his general conduct he was remarkable for strictness of life and sincerity.
His works, consisting of commentaries on the 1st, 2d, and 3d chapters of Amos, sermons and lectures in divinity, are now sunk into oblivion.

BENEFIT, is used for a privilege granted to some person, as of an immunity, or the like.

Benefit of Clergy. See Clergy.

BENE AMI, BENENATH, BENENASCH, or BENENAT, in Astronomy, the outermost star of the second magnitude, in the tail of the Ursa Major.

This is sometimes also called Abilinus.

BENENCASA, Count, a Venetian nobleman, born in 1745, not more distinguished by his birth than talents, taste, and knowledge in literature, is counted, by M. Laborde, in his "Effi la Musique," in 4 vol. 4to, published at Paris in 1780, to have furnished him with the chief part of his information concerning the poets, composers, musicians, and authors of Italy; and for enriching his researches. M. Laborde acknowledges with gratitude his obligations. See vol. III. of "Effi la Musique," where there are many articles concerning Italian composers and singers with which count Benencasa has furnished the editor, that breathe the true spirit of taste, finitude, and knowledge. This acknowledgment has cleared us in the first perusal of M. Laborde's work; but we always thought the articles concerning the Italian composers and singers in this work, of a different colour from the rest of the book: more liberal, more enthusiastic for genius and talents, and a taste more determinative and refined, than either that of M. Laborde, or his guide, the Abbé Rouyer.

When the account of the commemoration of Handel was writing, the editor being very desirous to know what judicious foreigners thought of those exhibitions, particularly Italians, accustomed to good music in their churches, as well as theatres, he applied to count Benencasa, who was then in London, and had been present at the performance of the Messiah in Westminster-abbey, for information concerning the comparative grandeur and excellence of the band, with any other which he had heard, or of which history or tradition had preferred the memory in his own country. As they had not time for a full discussion of the subject, when it was first proposed, count wrote, ignoring Benencasa was so obliging as to honour him with his opinion in a letter, which, before his departure from England, he entreated to publish, and it will not only serve as an honourable record of this splendid exhibition, but may well be the more flattering to the projectors of the plan, as the count is an excellent judge of music; having heard, read, meditated, and written on the subject, with a degree of feeling and intelligence, that is equally honourable to himself and the age. For this letter, see the commemoration of Handel, p. 116.

BENEDICTO, ItaL, a music term, implying at pleasure; equivalent to ad libitum, al suo piacere; which see.

BLERMOND, in Geography, a mountain of Scotland, in the county of Sutherland.

BENEFIT, in Geography, a town of Sifta, in the province of Oppid., 8 miles east of Trappan.

BENESW, a town of Bohemia, in the circle of Kuranz, in which fairs are held.

BENESOW, Benjaz, Pfeif, or Pozzen, a town of Bohemia, in the circle of Leutmet, 6 miles S. S. W. of Kamens; famous for the manufacture of the bell paper that is made in Bohemia.

BENET, a town of France, in the department of Vendée, and chief place of a canton, in the district of Fontenay-le-Conflent; 3 leagues south-east of Fontenay.

BENET Cape, a bay, lying on the south-side of the western peninsula of the island of St. Domingo, and forming with the line to Petit Goave on the north side, the narrowest part of it, 18 20', W. long. 72° 47'. The cape is the west point of the bay, and cape Jacqueline the east point, nearly east and west from each other.

BENETTO, a river in the island of Crete, 2 miles south from Barbacan island, having on the south side a small fort upon a hill, under which is a good road to 15 fathoms.

BENEVENT, a mountain of Scotland, in the county of Inverness, 21 miles east of Fort William. See Ben. N. 2d.

BENEVENTE, a town of France, in the department of the Creuse, and chief place of a canton, in the district of Bourganeuf; 10 miles N. N. W. of Bourganeuf. The place contains 1141, and the canton 8788 inhabitants; the territory includes 252 kilometres and 12 communes. —Also, a town of Spain, in the province of Leon, seated on the river Esla. N. lat. 42° 4'. W. long. 5° 5'.

BENEVENTO, a city of Italy, in the kingdom of Naples, in a duchy of the same name, comprehending besides the city, a district of nine miles. This capital of the Principato Ultra, or principality of Benevento, and tee of an archbishop belonging to the pope, is situated at the point of a hill, between two narrow vallies, in one of which runs the river Sabato, and in the other the Calore, near the confluence of these two streams. N. lat. 41° 6'. E. long. 14° 57'.

One of the entrances into the city is through the arch of Trajan, now called the "Porta Aurea," which is in tolerable preservation, and one of the most magnificent remains of Roman grandeur out of Rome. The architecture and sculpture are both singularly beautiful. This elegant monument was erected in the year of Christ 114, about the commencement of the Parthian war, and after the submision of Decebalus had entitl'd Trajan to the name of Dacicus. The order is composite; the materials, white marble; the height, 60 palms; length, 37 1/4; and depth, 24. It consists of a single arch, the space of which is 20 palms, and the height 35. On each side of it, two fluted columns, upon a joint pedestal, support an entablature and an attic. The intercolumniations and frize are covered with baltsichios, representing the battles and triumph of the Dacian war. In the attic is the inscription. As the fifth year of Trajan's consulship, marked on this arch, is also to be seen on all the military columns erected by him along his new road to Brundisium, it is probable, the arch was built to commemorate his beneficent undertaking. No city in Italy, Rome excepted, can boast of so many remains of ancient sculpture, as are to be found in Benevento. Scarce a wall is built of any thing but altars, tombs, columns, and remains of sculpturals. The most considerable are in the upper town, fupposed by Swiburne (Travels in the two Sicilies, vol. II. p. 336) to be the site of the old one.

The cathedral is a clumsy edifice, in a style of Gothic, or rather Lombard, architecture. This church, dedicated to the Virgin Mary, was built in the sixth century, enlarged in the eleventh, and altered considerably in the thirteenth, when archbishop Roger adorned it with a new front. In the court stands a small Egyptian obelisk, of red granite, crowded with hieroglyphics. In the adjoining square, are a fountain, and a very indifferent statue of Benedict XIII., long archbishop of Benevento.

The writers of the Benedictine history fix its origin in the years immediately succeeding the Trojan war, and claim Dionys, the Eolian chief, as its founder. Others apply it to the Samnites, who made it one of their chief towns, whether they frequently refected for refuge, when worshipt by the Romans. In their time, it was called "Malayum," of uncertain etymology, but after the conquest of Samnum, changed by the Romans into "Beneventum," in order to introduce their colony under fortunate auspices. Near this place,
place, in the 479th year of Rome, Pyrrhus was defeated by Curis Dentatus. In the war against Hannibal, Beneventum signified its attachment to Rome, by liberal teneed of succours, and by real services. Its reception of Gracchus after his defeat of Hannibal, is extolled by Livy, and from the gratitude of the senate, many solid advantages accrued to the Beneventines. However, it shared the devastations of the Roman empire, attending the eruption of the northern nations. When the Lombards invaded Italy, they fixed the seat of their empire at Pavia, and sent a detachment to take possession of the southern province. In 571, Zotto was appointed duke of Benevento, as a feudatory to the king of Lombardy, and seems to have confined his government to the city alone, from which he occasionally fellforth to seek for booty. The second duke, called Arechis, conquered almost the whole country that now constitutes the Kingdom of Naples. Upon the fall of Deidericus, last king of the Lombards, the state of Benevento was not materially affected. Arechis the second kept possession, and availing himself of this favourable conjecture, averted his independence; threw off all feudal submission; assumed the title of prince; and coined money with his own image upon it; a prerogative exercised by none of his predecessors, as dukes of Benevento. Afterwards, when Radelchis and Siconulphe aspired to the principality, each of them invited the Saracens to his aid. For the termination of these fatal diffusions, the dominions of these competitors were divided into two distinct sovereignties. In 851, Radelchis reigned as prince at Benevento; and his adversary fixed his court, with the same title at Salerno. From this treaty of partition, the ruin of the Lombards became inevitable; and the erection of Capua into a third principality was another destructive operation. From this time the inroads of the Saracens, and the attacks of the eastern and western emperors, together with anarchy and anarchy at home, reduced the Lombards to such wretchedness, that they were able to make a very feeble resistance to the Norman arms. Benevento, however, was chiefly governed by its own dukes and feovergines, till in the year 1653, the emperor Henry III. transferred it conditionally to pope Leo IX. From the year 1033, to this day, the Roman fee, with some short interruptions of possession, has exercised temporal dominion over this city. In a plain near the city a bloody battle was fought in 1265, when Charles of Anjou defeated and killed Mainfrym, his competitor for the sovereignty of the two Sicilies. In 1721, this city suffered greatly from an earthquake.

BENEVIS. See Ben Neri.

BENEVOLENCE, in Ethics, denotes a hearty desire of the good of mankind, evidencing itself, as ability and opportunity offer, in the cheerful and diligent practice of whatever may promote the well-being of all. Some have traced the origin of this affection in self-love; others again in some "infinite" or determination of our nature, antecedent to all reason from interest, which influences us to the love of others and they have accordingly made it the foundation of universal "virtue." Others ascribe it to the intelligent constitution of human nature, and observe, that it arises not from self-love, but from the natures and necessity of things. Hutcheon's Inquiry concerning Moral Good and Evil, p. 140, &c. Price's Review, &c. chap. iii.

Benevolent of God, in Theology, denotes his disposition to do good and to communicate happiness. This perfection of the deity has been referred to the class of moral attributes. (See Attributes.) For the illustration and proof of divine benevolence; see Goodness.

Benevolence is used, both in our Statutes and Chronicles, for a voluntary gratuity given by the subjects to their love-reign, to which each person contributes in proportion to his estate. Stow (Annals, p. 701.) says, that it grew from the days of Edward IV. It may be found also Anno 11, Henry VII. c. 10. yielded to that prince in regard of his great expenses in war, and otherwise. (12 Rep. 19.) But as benevolences had been extorted under many succeeding princes, without a real and voluntary content, it was made an article in the petition of right, (2 Car. I.) that no man shall be compelled to yield any gift, loan, or benevolence, &c. without common content, by act of parliament.

Nevertheless, by act of parliament, (13 Car. 2. c. 4.) it is given to his majesty king Charles II. with a proviso that it should not be drawn into future example. It was, therefore, declared by the statute 1 W. & M. 2. c. 2. that levying money for, or to the use of the crown, by presence of prerogative, without grant of parliament; or for longer time, or in other manner, than the same is or shall be granted, is illegal. See Aid and Tax.

In this sense, benevolence amounts to much the same with what in other nations is called "subsidium charitatum," given sometimes by tenants to their lords, by the clergy to their bishops, &c. In France it is called free gifts, excepting that this latter is restrained to the act of the clergy.

BENEVOLENTIA Regis Habsburg, in Law, the form of purchasing the king's pardon and favour, in ancient fines and subventions, to be referred to estate, title, or place. Pachon. Antq. p. 72.

BENEVOLENI, Orazio, in Biography, maestro di capella to the pope in 1650, and extremely applauded by his contemporaries for polyphonic compositions. Antonio Liberati, his disciple, in a letter which he published at Rome in 1645, in which he characterizes all the eminent contrapuntists of that school, speaking of Benevoli, says: that he surpassed all the masters of his time in writing for four and even six choirs, in which, by the construction and order of the parts, the imitations of beautiful passages, inverted fugues, double counterpoint, new contrivances, ligatures, preparations and resolutions of discord, the texture, connection, and fluidity of the whole, which, like a river, proceeds slowly; in short, with the wonderful richness and beauty of his harmony, he so completely vanquished every herself, as to obtain the applause of great masters, while he excited no other with in the rest, than to imitate his powers in the management of ecclesiastical harmony; by uniting numerous choruses, without dulness, confusion, or breach of rule. He was many years maestro di capella of the Basilica of St. Peter at Rome, and composed his famous masses for six choirs of four parts each, for that cathedral, on the cessation of the plague. It was performed by a band of more than 200 singers, arranged in different circles of the ducan, the fifth choir occupying the summit of the cupola. Besides this masses in 24 parts, there is extant a motet by the same author, for twelve sopranos, or treble voices of equal extent. There can be little melody in any of these multiplied parts; but to make them move at all, without violation of rule, requires great meditation and experience. No author of polyphonic compositions, perhaps, ever equaled Benevoli in the kind of science, except the Netherlander, Okenhem, the master of Jüquin, and our countrymen Tallis and Bull, of whose faculties and invincible patience in these achievements, there will be further occasion to speak elsewhere. The effect of such multiplied parts can so seldom be tried, that it seems an experiment which never can be fairly made, and is only amusing to the imagination. If there had been more frequent rehearsals of the misferey in eight:
eight real parts by Leo, which Anfani had performed in 1781 at the Pantheon by more than forty voices, it may be suppos'd, from such movements as were correctly executed, that the effect of the whole would have been wonderful! but I. o. lived in a more polished age, and was gifted, not only with patience, but with taste and genius.

BENEF. in Geography, a small island of Africa, on the river Sierra Leone, where the English had formerly a factory and a small fort, which was taken by the French in 1704, and razed to the ground.

BENFIELD, or BENFIELD, a town of France, and principal place of a canton, in the district of Barr, and in the department of the Lower Rhine, dated on the III; 45 leagues south of Straburg. The place contains 1220, and the canton 12,240 inhabitants; the territory includes 150,000 square feet, and 15,000. N. lat. 48° 15'. E. long. 7° 45'.

BENFIOL, a mountain of Scotland, in the island of Coll.

BENGAL, a name given among the Mohammeads to the leaves of hemp formed into pills or confects; the use of which, as well as opium, the more rigid Mahommen are to be lawful, thought not mentioned in the Koran, because they intoxicate and disturb the underlings, as wine does, and in a more extraordinary manner. These drugs, however, are now commonly taken in the East; but those who are addicted to them are generally regarded as debauchees.

BENGAL, in Geography, the most easterly province of the empire of Hindoostan, lying on each side of the Ganges, and bounded by Assam, Butoon, and Bahar on the north, by Bahar, Barar, and Orissa on the west, by Orissa and the bay of Bengal on the south, and by the mountains that separate it from Caflis, Assam, and the Birman dominions on the east and south-east. It extends from about 21° 30', to about 26° 40' N. lat.; and from about 56', to about 33° 30' E. long., but its boundaries are not accurately ascertained. About 50 miles beyond Tammangali, which is the termination of a fluctuating range of mountains, that accompanies the course of the Ganges from the sea, these mountains begin to form the northern boundary of Bengal on the western side of the Ganges; and from hence to another range of mountains strike in from the south, but in a curve frequently, which terminates within sight of the sea, about 30 miles from Balasore. To the north those mountains divide Bengal from the southern divisions of Bahar; and to the south they seem to be the natural separation of Bengal from Orissa. Eastward the province of Bengal extends as far as Ramgong, a town belonging to the king of Almora, and placed on the river Burmanpur.

The whole of Bengal, between the mouth of the river Hooghly and that of the Ganges, extends from east to west about 250 miles; and the whole is a country of tolerable size, which food and whiskers render accessible to ships of burden. For several miles in land the country is interspersed by numerous channels, through which both rivers discharge themselves, by many mouths, into the ocean; and the islands formed by these channels are covered with thickets, and occupied chiefly by salt fisheries. According to A'chard's division, Bengal is divided into the eleven subdivisions, or provinces, of Hindoostan proper; and its government is divided into the two districts of Orissa and Cutch, and the island of the Madaderry, whose dominions lay on the south, and who were either tributaries to, or powerful governors under, the Mogul, were apt to make, and sometimes actually made, arbitrary demands of duties for selling that way. However, it was in the reign of Ferokeen, great-grandson of Aurungzebe, who was deposed in 1717, that the English East India Company obtained the famous "ferryman" or grant, by which their
their goods of export or import were exempted from duties or customs; and this was regarded as the company's commercial charter in India, while they flooded in need of protection from the princes of the country. In the years 1742 and 1743, Bengal was invaded by both the Mahratta states, with armies consisting, as it is said, of 20,000 horsemen each; nor did they depart out of the provinces until the year 1744, when they had collected a vast mass of plunder, and had established the claim of the "Chout," or a fourth part of the net revenues of the provinces, as this proportion was called in the language of Hindooistan. In 1753, the Bear Mahrattas obtained possession of the province of Orissa, partly by conquest and partly by cession from Alverdy, the nabob of Bengal; and their proximity to Bengal, from which they were separated only by a shallow river, afforded them frequent opportunities of plundering its frontier provinces; and it was not till the year 1761, when Clive, nabob of Bengal, ceded the provinces of Burdwan and Midnapour to the English, that the Mahrattas ceased to plunder them. In 1756, Alverdy Cawn, nabob of Bengal, was succeeded by his grandson Surajah Dowlah, who, pretending to be irritated at the conduct of the English within his dominions and really jealous of the rising power of Europeans in general, in other parts of India, determined to expel the English from Bengal, and accordingly took their fort at Cuttack, the chief British settlement in the province, upon which their trade depended, and compelled those among them, who were not made prisoners, to retire, and others he caused to perish by confining them in a small chamber called the "black-hole" of Cuttack. In the following year, however, an armament from Madras, under admiral Watson and colonel Clive, not only recovered Cuttack, but brought the nabob to terms. With a view to permanent security for the future, they negotiated with Jaffier Ally Cawn, an amrah in high trust and favour with the nabob; and he engaged, on condition of their affitting him in his views towards the throne, to be their future ally and confederate. The famous battle of Plassey, fought in June 1757, and in which Jaffier aided the accomplishment of their wishes, by remaining neutral, laid the foundation of the future power of the British nation, not only in Bengal, but in Hindooistan. From that time they became the conquerors of the nabobship of Bengal, which speedily led to the possession of the powers of government; for Clive, nabob of Bengal, who had been placed in the room of Jaffier, dilating his duration, resolved at all events to hazard a change. This brought on a war, which terminated in the expulsion of Clive, and left the Bengal provinces in the possession of the English, who restored Jaffier to the nabobship. Lord Clive, alluming the government of Bengal in 1765, seized the opportunity, afforded by the recent death of nabob Jaffier Ally, of taking possession of the Bengal provinces; and obtained from the nominal Mogul, Shah Alimun, a grant of the dummy, or administration of the revenues of Bengal, Bahar, and Orissa; on condition of paying the Mogul 26 lacks of rupees (260,000l.) per annum. Thus a territory producing at that time at least a million sterling per annum, after every expense was defrayed, and containing at least ten millions of inhabitants, was gained to the company, on the side of Bengal; together with the northern circars, valued at nearly half a million more, and for which a grant was also obtained. The Bengal provinces, which have been in our actual possession from the year 1765, have, during that whole period, enjoyed a greater share of tranquility than any other part of India; or indeed, than those provinces had ever experienced since the days of Aurungzebe. Previous to the establishment of our influence, invasions were frequent, particularly by the Mahrattas, and one province or other was ever in rebellion; owing to a want of energy in the ruling power, an ill-paid and mutinous army, and an excess of delegated power.

The government of Bengal, and its extensive dependencies, was first vested in a governor-general and a supreme council, consisting of a president and eleven councillors; but in 1773, these were restricted to four, with Warren Hastings, the governor-general, who were to direct all affairs, civil and military, in the provinces of Bengal, Bahar, and Orissa; and to control the inferior governments of Madras on the coast, and Bombay on the west, with Benecoolen, in the island of Sumatra. The court of judicature consists of a chief justice, and three other judges, with civil, criminal, naval, and ecclesiastical jurisdiction. The Hindoos are governed by their own laws, nor would it be easy, if practicable, to extinguish the influence of the Brahmins, or totally to abolish the castes, to whatever degree they may countenance and maintain fanaticism and superstition. The military establishment in Bengal is always respectable, but varies according to the situation of affairs. The British troops are supported by the Sepoys, a native militia, who are accustomed to have numerous idle followers, so that the effective men seldom constitute more than a quarter of the nominal army. A force of 20,000 British soldiers might probably encounter and vanquish 200,000 blacks or Hindoos. The decisive battle of Plassey, which secured to us the possession of these opulent provinces, was gained with an army of about 3500 men, of whom 900 only were Europeans; and at the battle of Buxar, in 1764, the whole number of combatants on the side of the British did not exceed 7000, and of these 1200 only might be Europeans.

The climate of Bengal is reckoned by Dr. Lind, in his *Essay on diseases incident to Europeans in hot climates*, &c. the most infamous and fatal to Europeans of any of the British settlements in India, that of Benecoolen excepted. This is owing partly to the heat of the air, and more especially to that of the land wind, which, passing over a tract of country much heated by the sea, and confiding in various districts of extensive sandy deserts, becomes hot and suffocating, that it can scarcely be endured. These hot winds, occasionally loaded with sand, are for this reason, particularly to perfons exposed to them whilst sleeping, that they produce a kind of paralytic delirium, called the "sandbugs," which is attended with a total loss of the use of the limbs, and for which no relief can be obtained but by removing to some other climate. But the unhealthiness of this climate is principally owing to the inundations of its rivers, and to its level or flat surface, so that the waters flagrate; and of course when, in the month of October, the flagrated waters begin to be exhaled by the heat of the sun, the air is greatly polluted by the vapours that arise from the slime and mud that are cast by the rivers, and by the putrefaction of dead fish, and other animals. Although the falsitude of the climate of Bengal has been considerably improved by clearing the country of trees and jungle, by canals, and by draining the marshes, yet fogs are at this time common, very thick and very unhealthy; and excessive fogs also prevail at other seasons, and they often occur in the months of January and February. In Bengal, the hot, or dry season, begins with March, and continues to the end of May. the thermometer sometimes rising to 110°; and this intense heat is occasionally interrupted by violent thunderstorms from the north west. The rainy season continues from June to September or October; but the three last months of the year are generally pleasant. The cold season commences in November, and lasts till the beginning of February; northerly winds are then prevalent, and the mornings, especially before sun-rife, are cold. It is also frequently very fogg.
foggy, but about 8 or 9 o'clock, when the sun begins to be powerful, the thick mist is dispersed. For the remainder of the day the sky is perfectly clear, so that no clouds appear in the air for several days together. In the months of September and October there is a fall, and cloddy attack those that are late arrived; but here, as in all other places, sickness is more frequent at that season. For meals the regular dietary of the most prevalent dinners are feasts, of the remittent or intermittent kind; for though sometimes they may continue for several days without any perceptible remission, yet they have in general a great tendency to it, and are commonly accompanied with violent paroxysms of rigours or shiverings, and with discharges of bile upwards and downwards. If the stool be very sticky, fame are seized with a malignant fever, of which they soon die. The body is covered with blotches of a livid colour, and the corse in a few hours become quite black and corrupted. At this time fumes prevail, which may be called bilious, or putrid, the better to distinguish from others, which are accompanied with an inflammation of the bowels. In all these feasts at Bengal, the lancet is customarily to be used. The mode of treating fevers and bilious complaints being now well understood, they are less alarming and fatal. Dr. Link has it is a common observation, both at Bengal and Benadesco, that the moon or tides have a remarkable influence on intermittent fevers; and he informs us, on the testimony of a gentilman of undoubted veracity, and of great knowledge in medicine, that at Bengal he could set the precise time when the patient would expire; it being generally about the hour of low water. From these and other observations, the doctor deduces an useful hint, which is, to take doses of salt at the full and change of the moon, as being the season most liable to an attack or relapse in these intermittent fevers.

Although the rainy season does not commence in the flat countries of Bengal till the latter end of the month of June, the Ganges and other rivers begin to swell in the mountains of Thibet early in April, and by the latter end of that month, when the rain-water has reached Bengal, the rivers rise here. This circumstance is accounted for partly by the melting of the snow on the mountains, but principally, as Mr. Rennell observes, by the salt collection of vapours wafted from the sea by the southerly or south-well monsoon, and suddenly stopped by the lofty range of mountains that runs from east to west through Thibet. Hence it appears that the rainy season must commence sooner in places that lie near the mountains than in those that are more remote. In Bengal the rivers rise by degree; the increase being only about an inch per day for the first fortnight. It then gradually augments to two and three inches, before any quantity of rain falls in the flat countries; and when the rain becomes general, the mean increase is about five inches per day. By the latter end of July, all the lower parts of Bengal, contiguous to the Ganges and Burmapooter, are overflowed, and form an inundation more than 100 miles wide; nothing appearing but villages and trees, excepting, very rarely, the top of an elevated spot, the artificial mound of some deferted village, appearing like an island. The inundations in Bengal are as much occasioned by the rain that falls there, as by the waters of the Ganges; in proof of which it is alleged, that the lands in general are overflowed to a considerable height long before the bed of the river is filled. It ought to be observed, that the ground adjacent to the bank of the river, to the extent of some miles, is higher than that which is at a greater distance, and thus it forces to separate the waters of the inundation from those of the river, until it overflows. This high ground is, in some feasons, covered a foot or more; but the height of the inundation within vares, of course, according to the irregularities of the ground; and is in some places 12 feet. When the inundation becomes general, the river attains, as well by the rages and reeds on his banks, as by its rapid and muddy stream; for the water of the inundation acquires a blackish hue, by remaining long flagrante among rages and other vegetables; nor does it ever lose this tinge, which flows the prevalence of the rain water over that of the river; and the fluctuation of the motion of the inundation, which does not exceed half a mile per hour, indicates the remarkable flatness of the country.

In order to guard those tracts or land, which, by the nature of their culture and productions, and by the looseness of their situation, would be injured by too long an inundation, dikes or dams are raised at an enormous expense, extending in the whole of their length to more than a thousand English miles. Some of these are at the base equal to the thickness of an ordinary rampart, and yet, on account of the want of tenacity in the soil of which they are composed, they are often found insufficient, and need frequent repairs. One particular branch of the Ganges, navigable only during the rainy season, and then equal to the Thames at Chelsea, is conducted between two of these dikes, through an interval of 70 miles; and when it is full, the passengers in the boats look down, as from an eminence, on the adjacent country. During the flood tide of the river, the tide becomes incapable of counteracting the stream, and in a great measure of obliterating and flowing, except near the sea. At such a season, a strong wind, that blows up the river for any continue, makes the waters two feet above their ordinarly level; and such accidents have occasioned the loss of whole crops of rice. This rice is of a particular kind, for the growth of its flake keeps pace with the increase of the flood at ordinary times, but is destroyed by too sudden a rise of the water. The barley is often reaped in boats. There is also a kind of grass which overtops the flood in the same manner, and at a small distance has the appearance of a field of the richest verdure. Mr. Rennell informs us, that in the year 1764, a tragical event happened at Luckipur, about 50 miles from the sea, by a strong gale of wind, confining with a high spring-tide, at a season when the periodical flood was within 14 feet of its high peal. The waters then rose 6 feet above the ordinary level. On this occasion the inhabitants of a considerable district, with their houses and cattle, were totally swept away; and the calamity was aggravated by its happening in a part of the country which formerly produces a single tree, to which a drowning man might cleape. These inundations are traversed by every kind of embarkation; such as are bound upwards taking advantage of a direct course and still water, at a season when every stream rushes like a torrent. The wind too, which at this season blows regularly from the south-west, although in the gulf or bay of Bengal the monsoon blows from the S.S.W. and S.W., favours their progress in the eastern and northern parts of Bengal, where it blows from the S.E. or E.S.E.; so that a voyage which would take up nine or ten days by the course of the river, when confined within its banks, may be performed in six days. Husbandry and grazing are at this time both suspended; and the peasant travels in his boat these fields which, in another season, he was used to plough: happy, however, that the elevated rice of the rivers banks places within his reach the husbandry which they afford; without which his cattle must perish. Towards the middle of August, the inundation begins to subside; for though great quantities of rain fall in the flat countries in August and September, yet, by a partial ebb of the rains in the mountains, the buggies fall that are necessary to keep up the inundation. However, the decrease of the inundation does
not always keep pace with that of the river, on account of the height of the banks; but after the beginning of October, when the rain has nearly ceased, the remaining inundation goes off quickly by evaporation; and the lands are left highly manured, and in a fine fit for receiving the seed, after the simple operation of ploughing. For an account of the "boore," to which the rivers of Bengal are subject, see the article Bengal.

From the time of the change of the monsoon in October, to the middle of March, the rivers are in a turbulent state; and then the "north-westers" begin in the eastern parts of Bengal, and later as we advance westwards; and they may be expected once in three or four days, until the commencement of the rainy season. These "north-westers," so called from the quarter in which they usually originate, are the most formidable enemies to the inland navigation of Bengal. They are sudden and violent squalls of wind, and though they are of no long duration, they are often attended with fatal effects, and have caused whole fleets of trading boats to sink almost instantaneously. They are more frequent in the eastern than in the western part of Bengal; and happen oftener towards the close of the day than at any other time. For some hours before they arrive, they are indicated by the rising and singular appearance of the clouds; and thus the traveller is warned to seek shelter. But in the great rivers they are truly formidable; more especially about the latter end of May, and beginning of June, when the rivers are much increased in width. After the commencement of the rainy season, which period varies, in different parts, from the middle to the end of June, tempestuous weather must be occasionally expected; but at this season places of shelter are more common by the filling of the creeks and inlets, as the river increases, and, on the other hand, the bad weather is of longer continuance, than during the season of the "north-westers." The inland navigation of Bengal is performed with safety, with respect to the weather, during the long interval between the end of the rainy season, and the beginning of the "north-westers." At this latter season peculiar attention and care are necessary. For an account of the boats that are used in this inland navigation, see Dudgeon's Row.

Bengal is a low flat country, fertilized by numerous rivers and streams, and interspersed with a few ranges of hills. The triangle formed by the Cooumbazar and Hoogly rivers to the west, by the Ganges to the east, and by the sea-coast to the south, as well as a large tract on each hand to the north of this Delta (see Delta), is as level as the lower Euphrates. Such parts of this extensive plain as are not watered by the Ganges or its branches, are fertilized by other streams from the mountains; and for the space of three months, when the sun is merrily vertical, heavy rains fall every day. The periodical rains and intense heat produce a luxuriance of vegetation, almost unknown to any other country in the globe; and therefore Aurungzebe emphatically denominated Bengal "the paradise of nations," and it has been peculiarly styled "the paradise of India." The soil is a mixture of black vegetable mould, rich and loamy, extending to the depth of six feet, and in some places fourteen, and even twenty feet, lying on a deep sand, and interspersed with shells and rotten wood, which indicate the land to have been overflowed, and to have been formed by materials deposited by the rivers. It is easily cultivated without manure, and bad harvests seldom occur. In this country they have two harvests; one in April, called the "little harvest," which consists of the smaller grain; and the second, called the "grand harvest," is only of rice. The chief grain is rice, on which the natives chiefly subsist, and which is exported from hence into other countries. Bengal produces also very good wheat; and it furnishes the inhabitants of the mountains of Caffrerie, and of the elevated plains of Tibet, with both rice and wheat, in return for their shawls, gold, and muffs. Upon the failure of their crop of rice, a grievous famine ensued. Of this many melancholy instances have occurred, both in Bengal and in other parts of India. One of the most deplorable of this kind occurred in the year 1770. On this occasion, the nabobs, and great men of the country, distributed rice grists to the poor; but when their own flocks began to fail, they withdrew their donations, and Calcutta was crowded with multitudes of persons who came thither to solicit relief. But the whole stock being expended, the famine prevailed, and many thousands fell down as victims to hunger in the streets and fields, so that their bodies, mangled by dogs and vultures, corrupted the air, and seemed to threaten a plague. Many persons were employed daily, on the company's account, in throwing dead carcasses into the river, so that the waters were contaminated, and the fish could not be eaten without danger. Hogs, ducks, and geese, fed chiefly on the dead bodies; and the only meat which could be procured was mutton, which, on account of the dryness of the season, was so small, that a quarter of it would scarcely weigh a pound and a half. This dreadful famine was occasioned by a preternatural drought, which caused both the great harvest of 1769, and the little one of 1770, to fail. As a preservative from the miseries attending a dry season, and as a source of supply of water for domestic purposes, the inhabited part of the country is furnished with numerous reservoirs of an oblong square shape, and of various sizes, frequently more than an acre in extent, dug in the earth, and called "tanks." These are filled with water in the rainy season, and afford the inhabitants, during the dry months, a supply of water of a better quality and appearance than that of the Ganges, which is always thick and muddy. In these tanks is bred a sort of fish, in taste resembling our carp. Among the other vegetable productions of Bengal, the most important of which are tobacco, sugar, indigo, cotton, mulberry, and poppy, we may enumerate the banana tree, the cocoa-nut palm, which supplies a manufacture of cordage, called "coir," (see Cork), gourds, plantans, pomele, potatoes, lime trees, and orange trees. They have also the pifang, or banana; the furi tree, which affords, by incision of the item, a clear and sweet juice, of an intoxicating quality, and when turned four is used as vinegar; and the mango tree, the fruit of which is preferred to all others in the country, except very fine pine apples, and which is assisted in the hot months. Mr. Ives (Voyage from India to Europe, &c. 4th, 1773) mentions a beautiful tree, called "chulta," which has a flower that is at first a hard green ball, on footstalks about four inches long. When this opens, the calyx appears to be composed of five round, thick, and succulent leaves, and the corolla of the same number of fine beautiful white petals. After one day the corolla falls off, and the ball clothes again; of these there is a succession for several months. In the walks of Bengal they have a tall tree, called the "tattoon," and near Calcutta a spreading tree, called the "ruffa," making a fine appearance when in full bloom. In their gardens they cultivate most of the vegetables that are natives of other climates, and fit for culinary purposes. Among the animals of Bengal, we might mention the elephant, tiger, wild buffaloes, jackals, dogs, snakes, scorpions, &c. and a kind of birds, named "ar-gill," or "hurgil," a species of Ardea, which are very large and ravenous, and held in great veneration by the Brahmins. Game, poultry, fish, and water-fowl of all kinds, are very plentiful in Bengal. The horses used by the Europeans in this province are either of Persian or Arabian extraction.
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The island commerce of Bengal is very considerable, and is carried on by means of their rivers and canals that intersect the country, and along the banks of which are many towns and villages, with plenteous fields of arable and pasture land, which determines the face of the country, and renders it very beautiful. Some of the canals, formed either by the hands of men, or by the operations of nature, are wide and deep enough to be navigated by large ships. One of the most considerable of these is the "Hoz," or "Harc" channel, that runs straight through the country into the arm of the river that flows by Dacca. The chief articles of commerce which the country yields are silk, muslin, calicoes, cotton, and other piece-goods; opium, saltpetre, gum-lac, and indigo. Rice, wheat, &c. can only be reckoned casual branches of trade. Bengal has an inland trade with Thibet, which it supplies with cottons, besides some wine and clothes of European manufacture, receiving in exchange musk and rhubarb; and a much more extensive commerce with Agra, Delhi, and their adjacent provinces, in salt, sugar, opium, silk, silk stuffs, and an immense quantity of cottons and muslins. The mistress of trade of Bengal, managed by the natives of the country, has been divided into two branches, viz. that of Cuttack by means of its port Balmore with the Maldives, whether they transmit rice, coarse cottons, and fine silk stuffs, and where they receive in exchange cowries, used for money at Bengal, and sold to the Europeans. The inhabitants of Cuttack also carry on a considerable trade with the coast of Africa, to which they supply with faith in great quantities, reckoning in payment a small quantity of gold and silver, ivory, musk, eagle-wood, gum-lac, and a large quantity of silk. A more considerable branch of trade, which the Europeans carry on with the rest of India, is that of opium, which is cultivated at Patna. The Dutch send rice and sugar to the coast of Coromandel, for which they are usually paid in specie. They have also formerly imported Cotton with rice, Malabar with cottons, and Surat with silk, whence they brought back cotton, usually employed in the coarse manufacture of Bengal. Some ships laden with rice, gum-lac, and cotton stuffs, are sent to Bal- fora, and return with dried fruits, rice, sugar, and gold. The rich merchandise carried to Arabia is paid for entirely in gold and silver.

The articles that are disposed of to advantage in Bengal, are all kinds of spices, Japanese copper, sandlewood, and Japan wood, and also tin, lead, pewter, and other European commodities, of various kinds. See EAST INDIA COMPANY, and CALCUTTA.

Bengal is peopled by various nations, but the principal are the Mogul, or Moors, and the Gentoo, Hindoos, or Bengalee, and both the Bengalees and Moors have each a distinct language. The Moguls, or Moors, are descendants of those who between two and three centuries ago reduced this kingdom, and the whole empire of Hindostan, under their dominion. They were originally natives of Tartary. They yearly re-

linda the Europeans in traits and features; but they are or left from them in color. The Moguls are called the Hindoos in the Indian language, and are distinguished white. The women are very handsome, and much the same as the men, who are of an olive colour, and different from the women of Europe. Their hair is black, and their bodies short. According to the account, the Mogul woman are chaste, very frugal, and bring forth with much care, that they frequently wash the streets the very next day after delivery. Stavovus says, that their morals are universally bad, and that they are addicted to the most unnatural vices. The Moguls are more courageous than the Bengalees; and their "Sipahis" form good soldiers when they are trained and commanded by European officers. Their religion is that of Mahomet; and consequently they hold in abhorrence the idolatry of the Gentooos. The Bengalees, who are much more numerous than the Moors, do not differ much from the Europeans in stature; their colour is dark brown; the complexion of some of them approaches to yellow; their hair black and uncurled; and they are generally handsome and well made. They are moderate, licentious, and voluptuous; and nothing but hangings or thirst routs their activity. Some of them, however, are intelligent and ingenious; and though most of them are poor, some of their banyans, or merchants, are very wealthy, and very expert in matters of trade. Their women are said to be uncommonly wanton and intriguing: prohibition is not thought by them a disgrace; and they have licentious places, in which the law allows them, under a certain allowance, to distribute their favours. Their artificers in gold and silver are very ingenious, and imitate any model that is fast before them with great exactness. Europeans are often surprized to observe the perfection to which they have arrived in those branches of spinning cotton, and of repairing muslins that are torn, and in almost all the handicraft operations in which they are employed. The common people go almost naked. They wear nothing but a piece of linen, wrapped round the waist, and palled between the legs. Those of a higher rank have a dres of white cotton, which doubles over before as high as the shoulders, and is fastened with lings round the middle, and which hangs down to their feet. Most of them shave their heads, and eradicate the hair from all parts of the body. Rich people wear turbans, and many of them wear small ear rings. The dres of the women consists of a piece of cotton cloth thrown over the shoulders, under which they wear a kind of coat and drawers. Those who can afford it adorn their hair with gold bodkins, and their arms, legs, and toes with gold and silver rings and bands, and also their ears, and the ear-trapping of the nose. The inferior women wear familiar ornaments, made of a sort of cowries, and called "chance." Their heads are bare, and their hair turned up, and fastened at the back of the head. Rice is the chief article of their food, the remainder of which consists of vegetables and milk. They eat no fish, flesh of animals, nor any thing that has had life. Their beverage is pure water.

Both the Moors and Bengalees are fond of the amusement of dancing; and for this purpose they employ young women, who are trained up from their infancy to this diversion, and who are richly decorated whenever they are engaged to perform. Dancing is accompanied with music, both vocal and instrumental. For an account of the other inhabitants of Bengal, see GENTOOOS and HINDOOS. See also BRAMINS and FAKIRS. Besides these, several of the eastern nations, Persians, Armenians, and others, resort to Bengal, allured by the advantageous trade which they are enabled to pursue there.

Four European nations have established themselves in Ben-

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Bengal, for the purpose of commerce, viz. the English, the Dutch, the French, and the Danes. The English are the principal, and their chief settlement is at Calcutta, the present capital of the country. (See Calcutta.) Europeans lead, in Bengal, a very easy life. The men, who are almost all in the service of the company, devote a part of the morning to business, and perform of fortune keep in daily employment a black writer, for which he receives 20 or 25 rupees per month. They spend the remainder of their time in personal improvement or recreation. Besides the black writers, most Europeans have also one or two banyans, who note down all payments and receipts, and who attend all pecuniary matters in buying and selling. Moorish domestics are kept for the menial services of the house, and "peons," to run before the palankeens, and to carry an umbrella, or parasol, over the head of their master, when he goes out; and every house has likewise a porter, whose sole occupation is to answer the door; and one or two sets of "berras," or palankee brewers, together with a "harry-maid," or "matarani," who carries out the dirt; and a great number of slaves, both male and female.

The current coins in Bengal, and in the whole extent of Hindostan, are gold and silver Rupees; which see. See also Mohur. Copper coin is not seen in Bengal. For change they make use of cowries, 85 of which make a "poult," and 60 or 65 cowries, according to the scarcity or plenty of cowries in the country, make a Rupee. However, there is great variation in the value of cowries in Bengal. Weights are calculated by the Sar, answering nearly to two pounds avoirdupois, of which 40 make a maund; which see. The measures of length are cobidos, and gefs or gefs, which see. Diftances between places are measured by coins. See Coss. The vessels used for inland navigation are burs, budgetors, and pulwahas, which see. The general enumeration of passengers by land is on a fort of letters, called palankeens, which see. For an account of the manners and customs of the inhabitants of Bengal, and various other particulars; see Calcutta, Hindostan, and India. See also Gentoo, Hindoo, and Brahmin.

Bengal, bay of, is a large gulf in the Indian ocean, between the two peninsulas of India; bounded on the north by the coast of the province of Bengal, on the east by the kingdoms of Arakan, Pegu, Siam, the peninsula of Malaca, or Malaya, and part of the island of Sumatra; on the south by the great Indian ocean; and on the west by the coasts of Onfha, Coromandel, and the island of Ceylon. The Ganges and several other rivers, discharge themselves into this gulf; it contains many islands; and it abounds with bays, harbours, and port towns. Its widest extent is about 86 leagues, and its length about 72 leagues. In a more confined view it may be said to begin at cape Palmaris.

Bengal, Language of, or Bengalee, is derived from the Sanscrit (which see), and dilithed from the Persian, Moors, and Hindoustanic, which are spoken in several parts of this province, and each of which has its peculiar department in the business of the country. Its alphabet, like that of the Sanscrit, consists of 50 letters, of the form, found, and arrangement of which Halhed has given a very particular and detailed account in his "Grammar of the Bengal Language," printed at Hoogooy in Bengal in 1778. The only impediments in acquiring the knowledge of this language are the great number of letters in its alphabet, the intricate variety of their combinations, and the difficulty of pronunciation; but the grammatical part is simple, though diffuse, and complete without being complex. Its rules are plain, and its anomalies few. The vowels are distributed into long and short, the latter of which are often omitted in writing, and they are invariably subjoined to the consonant with which they are uttered, and never precede them. At every consonant, therefore, inherently pooffies the short vowel on which its utterance depends, it is plain that no two consonants could have been joined together, and successively pronounced in the same syllable, but that a vowel must necessarily have intervened. In order to remedy this inconvenience, a set of distinct characters was invented, called "P.holaas," or adjuncts. These are certain interdinate and subsidiary figures, eleven in number, that may be attached to each of the consonants in the alphabet respectively, and thus provide against the too frequent recurrence of the internal vowel. Exclusively of these "P.holaas," almost any two or three consonants may be blended together, for supplying the omission of the internal vowel. The compound letters may be formed by placing one letter immediately under another; or by blending two letters together, so as by their union to make one character; or by making the first of the two consonants much smaller than the other letters: which latter mode is the most common. The genders of this language are three, and the terminations usually distinguishing the masculine are "he," and those of the feminine are "ee," but it is not necessary that every noun comprehending be shouled be distinguished by a particular termination, or mode of formation, expressly to denote its gender. The Bengalese has four cafes besides the vocative, and in this respect it is much inferior to the Shanfcr, which comprehends eight different cases. The Bengali nouns have neither dual nor plural numbers; and the same form of noun serves for the singular or plural. In compositions of this language, though the first and second persons occur very frequently, the use of the pronoun of the third is very rare; and in order to avoid the application of the words he and they, the names of persons are repeated in a manner that is very tiresome and disfiguring. The second person is always ranked before the first, and the third before the second. The personal pronouns have seven cases, which are very irregularly varied. The indefinite pronouns are all aptotes in Bengalese, as they are in Latin and Greek. The Shanfcr, which is the parent of the Bengalese, as well as the Arabic, Greek, and Latin verbs, are formed with a set of inflections and terminations, so comprehensive and so complete, that by their mere form they can express all the distinctions both of person and time. By their root they denote a particular act, and by their inflexion they express the time when it takes place, and the number of the agents; and thus their separate qualities are perfectly united. Every Shanfcr verb has a form equivalent to the middle voice of the Greek, used through all the tenses with a reflective fene, and the former is the most extensive of the two in its use and office; because in Greek the reflective can only be adopted intrinsically when the action of the verb depends to no extraneous subject: but in Shanfcr, the verb is at the same time both reciprocal and transitive. Neither the Shanfcr, nor the Bengalee, nor the Hindostanee, have any word corresponding to the fene of the verb have, and therefore the idea is always expressed by ofi mihi; and of course there is no auxiliary form in the Bengalese verb answering to have written, but the fene is conveyed by another mode. As the verb substantive to be in all languages is defective and irregular, it is called in Shanfcr a "semi-verb;" and it is observed, by the ingenious writer above cited, that the present tense of this verb, both in Greek and Latin, and also in the Persan, appears evidently to be derived from the Shanfcr. In the Bengalee, this verb has only two distinctions of time, the present and the past; and the terminations of the several persons of these fene as a model for those of the same tense in all other verbs.
The Bengalese verbs may be distributed into three classes, which are distinguished by their penultimate letter. The simple and most common form has an open consonant immediately preceding the final letter of the infinitive. The second is composed of those words whose final letter is preceded by another vowel or open consonant going before it. The third consists entirely of cautes, derived from verbs of the first and second conjugation. The Greek verbs in are formed exactly upon the same principle with the Sanskrit conjugations, even in the most particular; of which instances occur in many verbs, which form from a root a new verb by adding the syllables, α and β (Bengal) or Δ (Gimlik) belonging to the first conjugation. In forming the past tense, the Shanferit applies a syllabic augment, like the Greek; and the future is characterized by a letter analogous to that of the same tense in the Greek, omitting the reduplication of the first consonant. Nor, indeed, is the reduplication of the first consonant always applied to the present tenses of the Shanferit, any more than to those of the Greek. It is observed, that the natural simplicity and elegance of many of the Asiatic languages are very much debased and corrupted by the continual shufle of auxiliary verbs; and this inconvenience has evidently affected the Persian, the Hindostan, and the Bengalee idioms. The infinitives of verbs in the Shanferit and Bengalee, are always used as subiective nouns; and a similar mode of figurative often occurs in the Greek. In the Shanferit language, as well as in the Greek, certain forms of infinitives and of participles comprehend time; and there are also other branches of the verb that seem to resemble the gerunds and infinitives in the Latin. All the terms which serve to qualify, to distinguish or to augment, either "subiective" or "action," are claffed by the Shanferit grammarians under one head; and the word used to express it literily signifies increase or addition. According to their arrangement, a simple subject consists of three members, viz. the agent, the action, and the subject: which, in a grammatical sense, are reduced to two, viz. the noun and the verb. They use a particular word for specifying such terms, as amplify the noun, which imports quality, and corresponds to our adjectives or epithets. Such are applied to denote relation or connection, are expressed by another term, which may be translated "proposition." The simple adjectives in Bengalee have no variation of gender, case, or number; neither the subject adjective to inflection, but the sign of the case is confined to the substantive, with which it agrees; and its form is confined to the singular number, even when joined in a plural noun. But the de- resent attributes, which are alternately adjectives and concrete nouns, generally preserve the distinctions of gender, which they all possess in the Shanferit. Propositions are substitutes for cafes, which could not have been extended to the number necessary for expressing all the several relations and predicaments in which a noun may be found, without occasioning too much embarrassment in the form of a declaration; thence in the Greek language are too few, and hence results great inconvenience. The Latin, which is less polished than the Greek, bears a nearer resemblance to the Shanferit, in words, inflections, and terminations.

The Bengalee method of computation, among the merchants, for the largest sums is by "hars," derived probably from the original mode of numbering by the fingers. To this day the Bengalee reckon by the joints of their fingers, beginning with the lower joint of the little finger, and proceeding to the thumb, the value of which is also included in the number, the whole hand containing 15. From this method of performing numerical on the joints, arises that well known custom among the Indian merchants of letting all matters of purchase and sale: by joining their hands beneath a cloth, and then touching the different joints, as they would increase or diminish their demand. See BANIAN.

It is peculiarly in the Bengalee computation, that the ninth numeral of every series of ten is not specified by the term of nine, in the common order of progression, but takes its appellation from the series immediately above it, as twenty-nine is not expressed in our manner, or by what we should conceive to be its proper denomination, but by a term denoting one less than thirty.

The Shanferit language, besides other advantages, has a great variety in the mode of arranging its vowels; the words are so connected together, that every sentence seems to be one complete word. When two or more words come together, "in jarring," the last of them only has the termination of a case; the others are known by their position; and the whole sentence, so connected, forms but one compound word, which is called a "foot."

For further particulars relating to the language of Bengal, its grammatical construction, and the method of acquiring it, we must refer to Hallad. 

The verbs of the Bengalee are regulated by accent, and by the number of syllables in a line; no regard whatever being paid to quantity, but as it coincides with accent. Their pooms, like those of the Arabsians and Persians, are in rhyme; and the Bengalee poets have many rules for controlling such words as are too long, and for extending those that are too short, for their metre. The Bengalee measures are altogether borrowed from the Shanferit, and may be divided into three species, viz. heroic, lyric, and elegiac.

In music, the Bengalee always use the minor key, and their gamut proceeds by the very small intervals of the chromatic scale. They have no idea of counterpoint, and always play or sing in unison or octaves.

The natives of Bengal write with a slender and tough reed, very common in all the east, which they shape almost like an European pen. They write with the hand closed, in which they hold the pen as the Chinese do their writing-pencil; pressing it against the ball of the thumb with the tip of the middle finger. The nib or point of the pen is turned down towards the wrist; while the thumb pointing upwards, and lying on the pen with its whole length, keeps it firm against the middle joint of the fore-finger. As they have neither charts nor tables, they fix upon their hands, or sometimes on their hams, whilst they are writing; and their left hand, held upon, serves as a desk on which to lay the paper on which they write, which is kept in its place by the thumb.

BENGALIENSIS, in Conchology, a species of 

Venus, described by Lillier. The shell is oblong, somewhat equilateral, with thick perpendicular flanks, and the beak turned back. inhabits Bengal.

BENGALIENSIS, in Ornithology, a species of Vultur, found in Bengal. It is of a brown colour, with the head and fore-part of the neck bare of feathers, and pair chieftain; bill lead colour, black at the tip. Linnaeus. Indien.

BENGALIENSIS, a species of Oris, called by G. Edwards the Indian Bipland. The colour is black; space round the eyes brown; back, rump, and tail, shining brown. Gmelin. Indien.

BENGALIENSIS, a species of Rallus, of a white colour, with the head and neck black; wings and back greenish, primary quill feathers spotted with red. Gmelin. This is the
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the Bengal water-rail of Albin; Tattanus Benghalensis of Trillon; and Cheviller vert at Buffon. The bill, irides, and legs are yellow; crown, area of the eyes, lower part of the back and body beneath white, temples and throat black brown; primary quill feathers purple, secondaries green; tail purple, with fulvous spots.

BENGALLA, in Geographer, a city of Hidostan, which existed during the early part of the 17th century, near the eastern mouth of the Ganges, but of which no traces now remain.

BENGASI, or Berniche, a chief-port town on the coast of Africa, in the Mediterranean. The merchants of this place usually join the caravan from Cairo at Anga in their way to Mazar, the capital of Perz, and import tobacco, manufactured for chewing, and snuff, and sundry wares fabricated in Turkey. N. lat. 32° 10'. E. long. 26°. This town is said to be the ancient Berenice, built by Ptolemy Philadelphia.

BENGUILLA, a town of Peru, in the province of Segudn, 346 miles south of Zareng.

BENGUL, a town of Peru, in the province of Calbi, 32 miles north of Cabil.

BENGUL, or Bengo, a mountain of Scotland, in the county of Perth, the highest point of which is said to be 3744 feet above the level of the sea; 5 miles N. E. of Blair Athol.

BENGUL, or Benga, a province of the kingdom of Angola in Africa, situated on the river of its name, but more commonly known by that of Zenza. It has the sea on the west, and the province of Mofco on the east. The Portuguese have cultivated large tracts of land in this province, which now abounds with maize- and manioc root, with which they make their bread. It produces also plenty of banana and bacco trees. It is divided into several districts, of which the chiefs are natives, though tributary to Portugal.

The inhabitants are Christians, and have eight churches.

BENGORE HEAD, a cape of Ireland, on the north coast of the country of Antrim, 10 miles N. E. of Coleraine. N. lat. 5° 15'. W. long. 6° 15'.

BENGUELA, a province of Angola in Africa, retaining the name of a kingdom, bounded on the east by the river Rumba, or Cumari, on the north by the Coanaza, and Culogi, at about 16° 51'. S. lat. and reaching westward quite to Cape Negro, according to the generality of geographers. But M. de Lisle extends it no farther north than Old Benguela, in 9° 54', and according to him, it is bounded on the east by the Giiga Calangi, or Giigane chief, and on the south he places the province of Olba, between the Hotentots and Benguela, which tract is mostly inhabited by such savage nations as the Caffres and Giigas. Benguela was formerly governed by its own kings; and most parts of the kingdom were fertile and populous; but it suffered so much from the incursions of the Giigas, and its wars with neighbouring states, that, with the protection of the Portugese, they have not been able to recover their importance. Its valuable productions are similar to those of Angola and Congo; and from the humility of the soil they have two fruit seasons in the year. It furnishes likewise a considerable quantity of fowl, though of inferior quality to that of Chilima. The Zimbas, whose fields are current as money through several parts of Africa, are caught upon its coast, and pass in payment either by weight or measure. The country, being mostly mountainous, swarms with wild beasts, such as rhinoceros, elephants, and wild mules. The lions, tigers, crocodiles, and other carnivorous animals, destroy great numbers of their cattle. Their fertile plains towards the sea-side formerly produced numerous herds of cattle, both small and great, but they are now become very scarce. The air of the country is so wholesome as to afford its produce, and take even its waters. Few Europeans have, therefore, ventured to visit it, so that it remains in a great degree unknown. The chief towns are Old Benguela, St. Philip, or New Benguela, Mankikondo, and Katchik. The commerce of slaves is so prevalent in this province, that the natives will sell their relations or children from mere wantonness.

BETINGUELA, Old, a town of Africa, in a province to call-d, south of a bay of the same name, near the Atlantic ocean. The town is situated on a high mountain, near large beves, sheep, poultry, and other provisions, have been told in great plenty, together with elephants' teeth; all which the inhabitants have bartered for muskets, and other firearms. S. lat. 14° 5'. E. long. 15° 30'.

BENGUELA, New, or St. Philip, a town in the province of Benguela, seated on the south of a large bay, about 2 leagues long and 1 broad, called by the Portuguese "Bahias-des-Vaces," where they have a settlement and a fort, with a small garrison. S. lat. 12° 5'. E. long. 12° 20'.

BENIHADAD, or the Son of Adad, in Scripture History, the name of several kings of Syria. Benahadad I. was the son of Tabrimon, and began his reign about the year 904 B.C. He was induced by envy to profess to aid Ahab, king of Judah, against Damascus, king of Israel, whom he obliged to return to the succession of his own country, and to abandon Ramah, which he had undertaken to fortify. 1 Kings, xvi, 18, &c. Benhadad II. was the son of the preceding, and his accession to the throne of Syria is dated to have taken place about the year 901 B.C. In his war against Ahab, king of Israel, he was totally defeated; and in the following year, renewing his attack upon the Israelites, in the plain of Aphek, he lost a great part of his army, and was reduced to the necessity of submitting to the mercy of Ahab, by whom he was treated kindly, and allowed to return peaceably into his own country. In a new war for the recovery of Ramoth-Gilead, the possession of which was retained by Benhadad, Ahab, joined by Jehoshaphat, king of Judah, marched against the Syrians, and a battle ensued, in which Naaman was the general of the Syrian army, and Ahab lost his life. Benhadad having afterwards laid siege to Samaria, and failing in his attempts to reduce it, fell sick; and sent Hazael his minister, to the prophet Eliahu, with presents, in order to consult him concerning the issue of his disorder. Hazael, on his return to Damasus, informed Benhadad that his health would be restored; but Eliahu having predicted that Hazael would succeed to the throne of Israel, the minifter accomplished the prediction by rushing Benhadad with a wet towel. Benhadad was reckoned a great prince, who contributed to advance the glory of his country, and his memory received divine honours in Syria. 1 and 2 Kings. Josaphus Ant. i. viii. and ix. Benhadad III. succeeded his father Hazael on the throne of Syria, in the year 856 B.C. After having been several times defeated by Josiah, king of Israel, he was expelled from all his father's conquests. 2 Kings. Jof. Ant. i. ix.

BEN-HINNON, or Geh-hinnom, the valley of the children of Hinnom, lay in the south-east suburbs of Jerusalem. See Gehenna.

BENI, Paul, in Biography, a learned writer, was born in Candia, about the year 1552, and educated at Engubio in the duchy of Urbino. In early life he entered among the Jesuits; but afterwards quitted them. He was for some time professor of theology at the college of Sapienza at Rome; of philosophy, at Perugia; and of rhetoric and belles lettres, in the university of Padua, from 1590 to the time of his death in 1625. He was more lively than judicious;
close; fond of maintaining singular opinions, and much engaged in literary controversies. He attacked the dictionary of La Crucefa, in a work entitled "Anti-Crucefa, &c." and defended Tanis, whom, with Anello, he preferred to Horace and Virgil. He also wrote on the pastor-fido of Guarini. All these works were written in Italian. The most considerable of his Latin productions are, "Commentaries on the poetry and rhetoric of Ariosto," Venice, 1627; "A poetical and rhetorical extract from the works of Plato," "Commentaries on the first books of Virgil, and on Salvius," "Disput. de annal. Eccl. Card. Boroni," and "De Historia Scribenda," lib. iv. Ven. 1611, 4to. All his works were printed at Venice, in 5 vols. fol. Gen. Dict. Nat. Dist. Hist.

BEN AIWOS, in Geography, a district of the western province of Algiers, about N. lat. 35° 45'. E. long. 30° 5'.

BEN Anesl, one of the eighteen provinces into which the Turks divided Algiers, so called from its capital.

BEN After, a town of Upper Egypt, on the east side of the Nile; 2 miles north of Alna, or Efeln.

BEN After, a town of Egypt, on the east side of the Nile, remarkable for its grottes, dug in the mountains, which were formerly temples; 6 miles north of Achmounin.

BEN Heta, called by Leo Africanus Habat, a province of Morocco, bounded to the north by the river Mamora, and extending south to that of Sarat: 4 leagues from Rabat, to the east, are the provinces of Fez and Tessa, and to the west the ocean. This province is very extensive, rich, and commercial; and produces wool of a very excellent quality.

BEN Jarch, a town of Egypt, on the west side of the Nile, 12 miles mouth of Achenouanin.

BEN Headab, and BEN Hozab, two districts of the western province of Algiers, bordering on the Mediterranean, about N. lat. 36° 30'. and E. long. 2° 12'.

BEN Jabar, mountains of Algiers, lying about 20 miles south of Beyjeha, or Bagja, and extending a considerable way along the coast, both in length and breadth, being parts of the little Atlas. They are steep and rugged, and furnish a great number of streams. They abound with fruit-trees, especially walnuts and limes, and produce plenty of barley, with which the inhabitants feed their numerous herds. The people are warlike, and have a great deal of their own, and among them are excellent archers; and the whole ridge hath several villages, inhabited by the tribe or people whose name it bears.

BEN Maran, a town of Egypt, 9 miles south of Achenouanin.

BEN Menafer, a district of the western province of Algiers, about N. lat. 36° 30'. and E. long. 2° 42'.

BEN Mezab, a district of the eastern province of Algiers, between 12° and 33° N. lat., and from 7° to 7° 10' E. long. This district is destitute of water, except that which they draw from wells.

BEN Mida, a district of the western province of Algiers, N. lat. 35° 45'. E. long. 2° 12'.

BEN Mijur, a town of Egypt, on the west side of the Nile, 3 miles south of Abu Gerge.

BEN Moha'rit II Ryur, a town of Egypt, west of the Nile, and 4 miles south of Abu Gerge.

BEN Reyhad, a town of Egypt, north of the river Shefiff and near it. N. lat. 37° 10'. E. long. 2° 10'.

BEN Mihnt, a town of Egypt; Situles N.W. of Marfeliou. BEN Smou, and BEN Smoufs, two adjoining districts of the western province of Algiers, on the confines of the Tell, about 35° N. lat. and between 18° and 17° E. long.

BEN Zeneel, a district of the western province of Algiers, to the north of the Monte Chahriqin, and east of the river Mala, or Mullouah; about 34° 34' N. lat. and 19° 30' W. long.

BENZ Zentola, a branch of Mount Atlas, in the western province of Algiers.

BENZA, a river on the coast of Africa, 3 leagues E.N.E. from Asperita, and E. from Comenda.

BENJAMIN, in Biography, the younger son of Jacob by Rachel, and one of the twelve patriarchs of Israel. He was the object of his father's peculiar affection, and reluctantly permitted to accompany his brethren to Egypt, when his return with them was made by Joseph the condition of their receiving supply of corn. Joseph, who was his only brother by both parents, treated him kindly, and contrived a pretext for detaining him in Egypt, but he afterwards, when he disclosed himself, permitted him to return to his aged father. The tribe of Benjamin, which formed part of Judah, properly so called, lay between the tribes of Judah and Joseph contiguous to Samaria on the north, to Judah on the south, and to Dan on the west, which last parted it from the Mediterranean. It had not many cities and towns, but this defect was supplied by its possessing the most considerable, and the metropolis of all, the celebrated city of Jerusalem. The other cities were Jericho, Gibsam, Bethul, Gibeah, Hal, Gilgal, Anathoth, Nebos; to which may be added the two noted villages of Bethany and Gethsemane. This tribe was at length almost exterminated by the others, in revenge of the violence offered to the concubine of a Levite, in the city of Gibeah. Genus: Joshua, Judges.

BENJAMIN, of Tudla, a city of Navarre, a Jewish rabbi, flourished in the 12th century. Possessed of a rhetorical genius for the law of Moses, and licentious to visit his countrymen in the cold, whom he hoped to find in such a state of power and opulence as might redound to the honour of his feet, he set out from Spain in the year 1160, and travelling by land to Constantinople, proceeded through the countries to the north of the Euxine and Caspian seas, as far as China's Tartary. From thence he took his route towards the south, and after travelling various provinces of the farther India, he embarked on the Indian ocean, visited several of its islands, and returned, at the end of 13 years, by the way of Egypt, to Europe, with much information concerning a large district of the globe, altogether unknown at that time, to the western world. He died in 1175, but long after his return from his travels. His "Historical" contains a narrative of his travels, intermixed with many fabulous accounts, that serve to raise the credit of his nation. Calpur Oudin, however, (Comment de Script. Eccl. tom. ii. col. 1521. Laps. 1722.) represents him as a man of sagacity and judgment, and well-skilled in the sacred laws; and says that his observations and accounts have been found upon examination to be generally exact, and that the author was remarkable for his love of truth. The first edition of the itinerary appeared at Constantinople in 1549, with a translation from the Hebrew into Latin, by Benedict Arias Mantuan; and it was printed by Plantin, at Antwerp, in 1575, 8vo. It was afterwards translated by the emperor Constatine, and his version was printed at Leyden, by Elzevir, in 1637, 8vo. A French translation of it was published by John Philip Baratier, in 1734, 2 vol. 8vo. Robertson's America, vol. i. p. 45. Gen. Dict.

Benjamin Tree. See LAUPUS.

Benjamin in Pharmacy. See BENJAMIN.

BENJAR RIVER, in Geography. See BENJAMIN.
BENIFADJO, a town of Spain in Valencia; 5 leagues from Valencia.  

BENIFAO, a town of Spain in Valencia; 3 leagues from Benifadjo.  

BENILET, a town of Asia, in the Arabian Trak; 145 miles N.W. of Diffahco.  

BENIMERIN, the denomination of an African dynasty, which succeeded that of the Almohadees, which see.  

BENIN, an extensive kingdom of west Africa, comprehending the slave coast, bounded on the west by Guinea proper, or, more particularly, the Gold coast; on the north by Bagno, Nigritia, and a chain of mountains; on the east by Muscarak and Makoko, and part of Congo, with the Ethiopean ocean; on the south, where it extends about one degree beyond the equinoctial line. It is commonly divided into three parts, viz. Whydah and Ardrah, containing the Slave coast, and Benin proper, which has the same boundaries with the former on the north, east, and south, and is terminated on the west by part of the gulf of Guinea and the Slave coast. Its extent from west to east is about 600 miles, but from north to south it is not ascertained. From the river Lagos, where it commences, its coast forms a gulf or bay, ending at cape Lopez, in which are the trading places, or villages, seated on several rivers, of Benin, Bonny, Old and New Calabar, Camaron, and Gabon. Benin is watered by several streams, of some considerable rivers. Towards the sea-coast the land is low and marshy, and of course the climate unhealthy; but at a greater distance from the sea the land rises, and the air is more pure. In some districts of the country, water is so scarce, that travellers are often supplied with it for money by officers, to whose department it belongs. The rivers teem with crocodiles, sea-horses, a particular species of torpedo, and various kinds of excellent fish. The country abounds with elephants, tigers, leopards, wild boars, asses, civet and mountain-cats, hares, hare, and hairy facex; and among its birds the principal are parrots, pigeons, partridges, flocks, and drachers. The soil is generally fertile, and produces a great variety of trees and plants, such as orange, lemon, and cotton trees. The pepper of this country is not so plentiful nor so good as that of the East Indies. The native negroes are in general mild and good humoured, civil to strangers, and yet referred, easily wrought upon by gentle means, but inflexible and refractory in resisting harsh treatment. In the conduct of bussinesf they are expert; but attached to their ancient customs and manners, which renders them fond and tedious in their negotiations. Honest and faithful in their dealings, they seldom or ever disappoint the confidence that is reposed in them. Their trade is carried on by a kind of brokers, called mercadores, or fidors, who treat with strangers about all merchandise; but all their contracts are made with great secrecy, through fear of exciting the jealousy or aversatce of their governors; and the richest persons exhibit the appearance of poverty, in order to escape the rapacious hands of their superiors.  

The population of Benin is distributed into three classes of persons. The first is composed of three persons, called great lords, who attend the king; and present petitions to him. Such is the influence of these, that the supreme government may be said to be lodged with them. The next class consists of those petty princes called "ares de rey," or direct kings, of whom some preserve over the commerce, others over the slaves; some over military affairs, and others over every thing pertaining to cattle and the fruits of the earth. Out of this class are chosen the viceroy's and governors of provinces, who are responsible to the three great lords, to whose recommendation they owe their appointment. Each of them is prefixed by the king with a firing of coral as a badge of office, which he is obliged always to wear about his neck, under the penalty of degradation, and even death. The third order consist of the fidors, the merchants, or merchants; the founders, or pleaders, and the vellies, or exiles, all of whom are respectively distinguished by some peculiar mode of wearing the coral chain. The lowest class is formed by the plebeians, who are generally indolent and poor. The whole burden of labour, such as tilling the ground, spinning cotton, weaving cloth, and even clearing the forests, is devolved upon the women. The chief workmen are smiths, carpenters, and leather-makers; but in every occupation of this kind they are extremely awkward and artless. The common diet of the natives is beef, mutton, or fowls, and their bread is made of yams, beaten into a sort of cake. The meal is usually made upon a fried, and bread made of yams, bananas, and beans, mixed together. The drink of the poor is water, and that of the richer, water mixed with European brandy. The king, and persons of rank, support a certain number of poor, selected from the blind, lame, and infirm; the lazy, who will not labour, are suffered to starve; and by this excellent police, not a beggar or vagrant is to be seen. The natives of Benin are distinguished by their liberality; but in the exercise of it they are extravagantly vain and ostentatious. The dress of the natives is neat and ornamental; that of the rich, in which they appear in public, consisting of white calico, or cotton drawers, covered with another fine piece of calico plaited in the middle, and bound under a scarf, the ends of which are adorned with a handle lace or fringe. The upper part of the body is mostly naked. The ladies of better fashion wear fine calico, beautifully chequered with various colours. The face and upper part of the body is covered with a thin veil, and the neck adorned with a flying and chain of coral. Upon their arms and legs they wear bright copper or iron bracelets, mostly wrought. The persons of the women are not disagreeable. The children go naked till the age of ten or twelve years; their whole dress, before this period, consisting of a few bindings of coral tied round the waist. The men neither card nor adorn their hair; but they form part of it into locks, to which they suspend a bunch of coral. The women drefs their hair with great art in a variety of forms, and occasionally apply to it a kind of nut-oil, which destroys its black colour, and in time changes it into green or yellow. The men marry as many women as their circumstances allow; but they have no strictly nuptial ceremony. Jealousy is very prevalent, and adultery is never punished; but the violation of the marriage-bed is less known in Benin than in any other country. Male infants, as soon as they are born, are presented to the king, as rightfully belonging to him; but the females, being deemed the property of the father, are left wholly to his care and disposal. Both male and female children are circumcised, when they are about a fortnight old; and they are marked over their bodies with various incisions, that express certain figures. In some parts of Benin twin births are reckoned a happy omen; but at Akerbo, they are reputed a bad omen, and both the twins and their mother
mother are put to death. The inhabitants of Benin are less afraid of death than the other natives of the same coast. Such is their attachment to their own country, that those who die in other provinces are preferred for years, till they can be conveyed for burial to their native soil. On occasions of mourning, which is usually limited to 14 or 15 days, some shave their hair, others their beard, and others but half of either. The left obsequies of their kings are performed with some very extraordinary ceremonies. When the tomb is laid, they crown it with a banquet of the most delicate wines and sweetmeats, of which all are allowed to partake; and the mob, intoxicated with liquor, are guilty of the wildest excesses and riots. Those who obstruct them, as men, women, children, and even brute animals, are put to death; and having cut off their heads, they carry them to the royal palace, and throw them in as offerings to the deceased king, together with all the clothes and effects of those whom they have sacrificed to his majesty. Nevertheless, amid these barbarous customs, the kingdom of Benin is governed by laws, which breathe nothing but humanity, and sympathy for misfortune and distress.

As to the religion of this country, it is a strange mixture of good sense and absurdity. With some just notions of a Supreme Being they blend many absurd and idolatrous ceremonies. The “Tetiflo” is worshipped here, as well as in all the other countries on the western coast of Africa. To every evil they give the name of devil, and worship him from fear, and to prevent his doing them injury; and they honour both God the Creator, and the evil spirit, by sacrificies and offerings. They are believers in apparitions; and they conceive that the ghosts of their deceased ancestors walk on the earth, and occasionally appear to them in their sleep, to warn them of their danger, which they endeavour to elude by sacrificies. All their houses are full of idols, and they have particular huts or temples for the residence of their gods. Their priests also are numerous, and the grand, or high priest of Lecbo, a town seated at the mouth of the river Formosa, is particularly famous for his skill in magic, and is never approached without the most profound reverence and awe. Baffles their Sabbath, a day of repos which occurs every fifth day, they have many other days appropriated to religious purposes. At some of their feasts they sacrifice not only a great variety of brutes, but likewise a number of human victims, who are usually condemned criminals, reserved for this purpose. They have one annual feast in commemoration of their ancestors; but their greatest festival is that called the coral feast, on which day alone the king appears to his people in great pomp, attended by 600 of his women. Wine and provisions are distributed on this occasion among the people, and the day ends in gluttony, drunkenness, and riot.

The government of Benin is despotic. The empire is divided into a great number of petty royalties, all of which are subject to the king of Benin, whose authority is absolute, and commands the most blind and servile obedience. The reigning monarch, when he apprehends his dissolution to be approaching, commands one of his foes to kill the throne, with an infraction, under pain of death, not to reveal the secret till after his death. When this happens, the defined sovereign is removed to the town of Lecbo, a few miles from Benin, the capital, where he remains for some time to be instructed in the art of government, and the duties of a king. Upon his return, his first care, for securing his future tranquillity, is to murder his brothers, and thus to remove every rival to the crown. The royal revenues are very considerable; so that every governor contributes a large sum; and the inferior officers pay their taxes in cattle, fowls, cloth, and other commodities. Certain duties are also laid upon foreign trade; besides the annual taxes paid to the governor for the privilege of commerce, a sixth of which belongs to the king. It is said that the sovereign of Benin is a powerful prince, that, in one day, he can assemble an army of 20,000 men, and in a few days more 100,000. His troops, however, are destitute of courage and conduct; and, indeed, are merely a cowardly tumultuous rabble, which leave him exposed to the incursions of pirates and robbers, that are suffered to pilage and destroy, and sometimes to advance even to the capital. The arms used by them are swords, poniards, javelins, bows, and poisoned arrows.

The capital of this kingdom is Benin. The other principal towns, or rather villages, are Bododo, Arebo, Agatton, Aferri, and Meheberg.

All the slaves purchased on this part of the African coast, except a tribe distinguished by the name of “Moeces,” are called in the West Indies “Eboes,” probably from Arebo, on the river Benin. In language they differ both from the Gold Coast negroes, and those of Whydah, and in some respects from each other; and in complexion they are much more yellow than the others; but their colour is a sickly hue, and their eyes appear as if suffused with bile, even when they are in perfect health. These Eboes appear, in general, to be the lowest and most wretched of all the nations of Africa. The great objection to them is slavery, their constitutional timidity, and dependancy of mind; which lead them very frequently to seek, in a voluntary death, a refuge from their own melancholy reflections. They require, therefore, the gentlest and mildest treatment to reconcile them to their situation; but if their confidence be once gained, they manifest as great fidelity, affection, and gratitude, as can reasonably be expected from men in a state of slavery. The females of this nation are better labourers than the men, probably from having been more hardly treated in Africa. These Eboes, notwithstanding the depression and timidity which they manifest, on their first arrival in the West Indies, and which give them an air of softness and submission, forming a striking contrast to the frank and fearless temper of the Komorantyn Negroes, are in reality more savage than the people of the Gold Coast; infomuch, that many tribes among them, and especially the Moces tribe, have been accustomed to the shocking practice of feeding on human flesh. In their religious worship, they adore certain reptiles, of which the guana, a species of lizard, is in the highest estimation, and in the worship of this animal, it is said, that they offer human sacrificies.


Benin, a city of Africa, and capital of the kingdom above described. It is pleasantly seated on the river Benin, or Formosa, about 60 miles from Agatton, at the mouth of the river, and is said to be 4 miles in circumference, and to contain 30 long, broad, and straight streets of low houses. The streets are adorned with a variety of shops filled with European wares, as well as the commodities of the country, such as cattle, cotton, and elephant’s teeth. In their markets they expose to sale, for food, dogs, of which the Negros are fond; and also roasted monkeys, apes, and baboons. Bats, rats, lizards, dried in the sun, palm-wine, and fruit, form the most luxuriant entertainment, and flesh always exposed to sale in the streets. As the country affords no stone, the houses are built with mud and clay, covered with reeds or straw: and they are separated from one another by chains and rails, that indicate its decay. The entrance into the city is by a gate of wood, which is defended by a bastion of mud and earth: and it is surrounded by a deep ditch 40 feet wide. A guard is stationed at this gate to receive the tolls, duties, and imports collected from the merchandise. None but natives are permitted to enter.
permitted to live in the city; and of these some are wealthy, and carry on an extensive trade, which is committed to their wives, who go to all the circumjacent villages, and traffic in all sorts of merchandise, and who are obliged to bring the greatest part of their gains to their husbands. A principal part of the city is occupied by the royal palace, which is more distinguished by the extent of its dimensions than by the commodiousness or elegance of the structure. All the male slaves in this town are foreigners; for the inhabitants cannot be sold for slaves, and only bear the name of the king's slaves. This is one of the European mart's for the purchase of slaves. N. lat. 6° 10'. E. long. 5° 0'.

BEN, River of, called by Juan Alonso de Aveiro, a Portuguese, who is said to have first discovered the country, Formosa, on account of the verdure and beauty of its banks; a navigable river of Africa, in the kingdom of Benin. It divides itself into several branches; and has some tows or villages on its banks, in which Europeans, and particularly the Dutch, carry on a commerce. Notwithstanding the beauty of its adjacent scenery, the air is noxious and pestilential, on account of the vapours exhaled by the hot sun from its marshy banks; and it is much infested by the mosquito flies. The entrance into this river is in N. lat. 6° 38', and E. long. 4° 47'.

BENACOUR, St. a town of France, in the department of Nièvre, and chief place of a canton, in the district of Nevers. The place contains 1583, and the canton 10,655 inhabitants: the territory includes 350 kilometres, and 21 communes.

BENISH DAYS, among the Egyptians, a term for three days of the week, which are days of love in ceremony than the other four, and have their name from the lefth, a garment of common use, not of ceremony. In Cairo, on Sundays, Tuesdays, and Thursdays, they go to the bath in the day; and there are the general days of bufnifs. Fridays they stay at home, and go to their mosques at noon; but though this is their day of devotion, they never abjure from bufnifs. The three other days of the week are the benish days, in which they throw off all bufnifs and ceremony, and go to their little summer-houses in the country.

BENISOUEDE, Geography, a town of Egypt, on the west side of the Nile. According to Savary, it is half a league in circumference; and Sonini says, that of all the places situated along the Nile, from Cairo, or for the space of more than 50 leagues, this is the largest, as well as the most affluent. The houses are only cottages of brick and earth, coarsely constructed; but the lofty minarets, rising in height with the surrounding date-trees, and discovered through their highest branches, present an agreeable object to the view. A manufacture of coarse carpets renders this a commercial town; and the adjacent plains are fertile and productive, so that the people who cultivate them appear less distressed and wretched than those who live near the capital. Benifouf is the residence of a bej, or, in his absence, of a kiachef, who levies with an armed force his arbitrary tribute. Over against Benifouf lands the village of "Baird," partly inhabited by Copts; and on the same side of the river, and at the distance of 3 leagues, is "Bebe," a large village, the residence of a kiachef, where are a mosque and a convent of Copts. Benifouf lies in N. lat. 40° 19'. E. long. 30° 38'.

BENITO, St. a small island of the north Pacific Ocean, on the north-west coast of America, surrounded with rocks and islets. N. lat. 25° 41'. E. long. 124° 38'.

BENITO, St. or St. Benett, a river of Benin, in Africa, which discharges itself 7 leagues S. by W. from the bight of Biafra, and on the south side of the river Campo, into the gulf of Guinea. On the north side of this river flows a great hill, called the Hayburn. N. lat. 1° 45'. E. long. 8° 10'.

BENIVIENI, Girolamo, in Biography, was born at Florence, in 1452, and contributed under the auspices of Lorenzo de Medici, to reclaim the Italian poetry from its mean and trivial state, and to renew the style and manner of Dante and Petrarch. The principal topic of Benivieni was divine love, which he cloathed with the sentiments of Pindar, and thus obscured the poetical beauties of his works by mysticism. He was esteemed on account of his integrity and virtue, and employed by Pico, prince of Milan, as his almoner. He died at Florence in 1532, and was buried in the same tomb with his friend Pico. His works were printed at Florence in 1500, and again with additions in 1510. Not. D. A. Hist.

BENLOWERS, in Geography, a lofty mountain, being the chief summit of the Granadum chain, near Kenmore, in Perthshire, Scotland. One of its sides rises from the banks of the Tay, and, assuming a conical shape, elevates its summit about 4015 feet above the level of the sea.

BENLOMA, in Ethnology, the name by which the Swedes call the common leek, cepinthus alburnus of Linnaeus.

BENLOND, in Geography, a mountain of Scotland, situated in the parish of Buchanain, in Dumbartonshire. Though not so lofty as Benives or Benlowers, yet its isolated situation, with respect to the neighbouring hills, and broad lake of Loch Lomond spreading at its base, give it great magnitude and grandeur. It is computed to be 3200 feet above the level of the sea, and 3240 from the surface of the lake. The form of it resembles nearly a truncated cone, and its sides, particularly towards the lake, are finely mantled with natural woods. Its north side is exceedingly steep, but on the south-west it may be easily ascended. On the north-east side is the source of the river Forth, which, like most mountain streams, soon becomes a rapid river, and is alternately seen expanding into a lake, or darting over some craggy precipices. Benlomond is mostly composed of granite, interspersed with large masses of quartz, and near the base are large strata of micaceous schistus, some of which is also found at the top of the mountain. Sinclair's Statistical Account of Scotland.

BENNA, in British Antiquity, a kind of carriage, which was used for traveling rather than for war. It contained two or more persons, who were called "Combemone," from their fitting together in this machine. The name was probably derived from the British word "Ben," or pen, which signifies head, or chief; and these carriages might, perhaps, have got this appellation from the high rank of the persons who used them.

BENVENNEA, or BAVANNAYnt, in Ancient Geography, a town of Britain, in the itinerary of Antonine, placed by Camden, Gale, and Stukeley, at Weedon, a village five miles west of Northampton, but by Mr. Horrey, for reasons which he has stated, and which seem to be satisfactory, at or near Daventry.

BENNECKSTEIN, a town of Germany, in the circle of Upper Saxony, and county of Klettenberg; 22 miles S.S.W. of Halle in Rheinland.

BENECUM, in Geography, a town of Guelderland, 2 miles north of Wageningen.

BENNET, CHRISTOPHER, in Biography, was born at Raynton, in Somersetshire, about the year 1617. After the usual school education, he was entered at Lincoln college, Oxford, in the year 1632, where he proceeded bachelor, and then master of arts, but seems to have acquired his knowledge of medicine at Leyden, or some other university, where he took his degree of doctor. He then came to London, was admitted fellow of the college of physicians, and appears to have had a considerable share of reputation and practice. In 1646,
1662, he published "Theatrum tabulorum, seu picturis, e lectionem xenodochi," in two volumes. London: a work of learning and largeness, but abstruse and theoretical. He made a number of curious experiments to discover the qualities of the blood in phthisical patients. He had been deaf since the age of fourteen, disabled by discharges from the ears; and on the other hand, phthisical complaints occasioned by supposing his marriage from the spirits. He observed, that consumption not infrequently occurs in England, unattended with affection of the lungs. The work has been translated into most of the modern languages, and passed through numerous editions, though now a great forgotten. It was republished, with observations, Father's treatise, called "Health's Instructor." He died, aged 21, in April 1645, and probably had been induced to employ so much of his time and labour in acquiring a knowledge of the diseases from his own sufferings. Haller. Bib. Med. Pract.

Bennet, Henry, Earl of Arlington, an eminent statesman, and favourite minister of King Charles II., was born of a good family in the county of Middlesex, in 1618. Educated at Christ-Church College, in the University of Oxford, where he did gratify himself by his application, and by his turn for English poetry; and under the king's coming to Oxford, at the breaking out of the civil war, entered himself into service, both as a volunteer in the royal army, and as private secretary to Lord Digby, secretary of state. Upon the failure of the royal cause, he went over to the continent, and became secretary to the Duke of York, and performed the full confidence and office of the royal family. In 1632, he received the honor of knighthood from Charles II., and was sent by him in the quality of his minister to the court of Madrid. Soon after the king's restoration, Sir Henry Bennet was recalled from Madrid, and in 1662, promoted to the office of secretary of state. In 1663, he was created Baron of Arlington, and at that time was considered as the king's chief minister and favourite servant. He is supposed to have been at the head of the party which procured the fall of the chancellor Clarendon. The conduct of foreign affairs was chiefly intrusted to him, and he had a great share in the first Dutch war. About this time he introduced Mr. (afterwards Sir) Wm. Temple, into public employment. He took one of the principal characters in the navigation of that period, especially in the capture of the "Golden Lion," from the East India. A book published by John Dalrymple, it appears, that the king's gift to him of the monastery of Dover, with Mo. Sir. Coham, the French and Spanish, a secret league between Charles II. of England, and Louis XIV. of France; by which Charles agreed to declare himself a Roman Catholic, and to engage in a war for the distinction of the United Provinces. By the terms of the treaty, a naval settlement was to be made in the north of England, but the shipping was to be of a king a year, with the trade of the United Provinces. In consideration of the free navigation to and from the United Provinces, and a revenue for other than the common means, the earl of Arlington was paid in 1672, the duty of one in the Admiralty, a sort of insular, and decreed with the consent of the court. In 1673, his conduct, and that of his minister, was to under the scrutiny of the lords; and a plan was moved against him, which was defeated by a false report. In that year he obtained the office of lord chancellor, for the first time, and paid his salary. He had been a member of the House of Commons, and soon after he was dispossessed with other candidates, and was put of importance to the interests of Orange; but not succeeding in the conduct of it, his interest at court declined. Thus was partly owing to his affair at a private paper, though he had been always regarded as a secret friend to the papal party, and was in reality a convert to that religion. He retained, however, in outward appearance, the favour of the king; and after the accession of James II., who had no affection for him, held the office of chamberlain. He died in July, 1679, having previously, on his death-bed, as it is said, reconciled himself to the church of Rome. By his wife, who was daughter of Lewis de Nassau, lord of Bevernast in Holland, he left two daughters, married to the earl of Rutland, afterwards duke of Grafton, natural son of Charles II.

"The character of lord Arlington seems to have been that of a thorough courtier; accommodating, easy, civil, with the habits of public business, rather than exacting abilities, and the moderation of timidity rather than the want of principle. He had little knowledge of the English constitution, and least regard to it; but he wished Henry and resolution to take the lead in army and marine. His public letters, when secretary, were published in 1672. 2 vol. 8vo." Brig. Brit. Gen. Dio.

Bennet, Thomas, an eminent divine of the church of England, was born in the city of London, in 1617, and went for completing his education to St. John's college, Cambridge, in the beginning of the year 1638. Before he had attained the age of 21 years, he took the degree of bachelors and master of arts; and he was chosen fellow of his college. In 1645, he wrote a copy of Hebrew verses on the death of queen Mary, printed in the Cambridge edition of verses on that occasion. In 1649, he entered into the controversy between the church and the divines, and published "An Answer to the dissenters' plea of separation, or an abridgment of the London cases." In 1650, he was presented to the church of St. James's at Colchester, where he became a very popular preacher. During his residence in this place, he published "A confutation of Popery," several tracts of controversy with the dissenters on the subject of "Schism," and also "A Confutation of Quakerism," and also published "A Paraphrase, with Annotations upon the book of Common Prayer," with two letters, relating to the same subject, and "The Rights of the Clergy of the Christian Church." About the year 1711, he took the degree of doctor in divinity. As his popularity declined at Colchester, and his salary, which partly depended on voluntary subscriptions, was reduced from 50l. to 60l. a year, he determined to remove to London, and accordingly accepted the office of deputy chaplain to St. George's hospital, and this appointment was since declared by the two last letters of St. Olow, Southwark, and St. Lawrence Jury. Before his removal to London in 1716, he published, in 1714, an essay entitled "Directions for Studying," and in the following year, his "Essay on the thirty-nine articles of Religion," etc. and the case of his subscription to the article considered in point of law, history, and conscience, with a preface to the article to the article entitled "the bequest of Anthony Collins, Esq.," supposed to be the author of "Protestants in Pulpit," published in London in 1719. In 1716, he published a pamphlet entitled "The Nonjurors' separation from the church of England examined," and found to be schismatical on their own principles," and a sermon on "The case of the Reformed Episcopal churches in Great Poland, and Polish Prussia." Soon after, he was presented by the lord de la meme, at the secular of St. Giles, Capelle, etc., which afforded him another income, amounting after several deductions, to 450l. a year. For this preferment he was indicted to the private interference and recommendation of bishop Hadley. After his settlement in this parish, in 1717, his tranquillity was inter-
interrupted by some law-suits in which he was engaged for recovering deeds that belonged to the church. However, he published, in the same year, "A Spital Sermon;" and in 1718, "A Discourse of the ever-blessed Trinity in Unity," with an examination of Dr. Clarke's Scripture Doctrine of the 'Trinity.' From this time the harassed state of his mind, and the weight of parochial duties, prevented his undertaking any new work, except "An Hebrew Grammar," published at London, in 1716, 8vo. and intended for the use of such as want to learn Hebrew without the assistance of a master. He died at London of an apoplectic fit, in the 56th year of his age, on the ninth of October 1728, and was buried in his own church. Dr. Benet, though a man of strong passions, and not altogether exempt from the charge of haughtiness, was distinguished by his piety and integrity, by the diligence and zeal with which he devoted himself to the studies and duties of his profession, and by his extensive learning, more especially by his skill in the oriental and other learned languages. As an acute reasoner and accurate writer, he had few equals. His talents for controversial writing, which perhaps he indulged to excess, gave him a decided advantage, particularly in his disputes with dissenters, over incompetent antagonists; but on some occasions they led him to recur to dilutions and ruminations, which would not always bear examination, and which laid him open to the attacks of his adversaries. Several of his writings, as they related to temporary controversies, have been confounded to oblivion. Those which have excited attention in modern times, are his "Discourse of the Trinity," and his "Catechism of the Articles of the Church of England." His exposition of the Trinity has been charged with inclining to that heterodoxy which he wished to avoid, and which, without doubt, he sincerely abhorred; and his defence of subscription has undergone some severe strictures by the acute and learned author of the "Confessional." It redounds much to the honour both of Dr. Benet and bishop Hoadly, when we consider the disparity of their opinions, that the latter contributed to the preferment of the former. Gen. Dict. Bost. Brit.

**BENET, herb, in Botany. See Geum.**

**BENNEVAGH, in Geography, a large mountain in the northern part of the county of Londonderry, province of Ulster, Ireland, about 8 miles west of Coleraine.**

**BENNEVIS. See Ben Nevis.**

**BENNI, in Lichnology, a name given by Bosc after Sonnini, to the species of Cyprinus which inhabits the river Nile, and is described by Forsskal under the specific name of bynni. See Bynni.**

**BENNINGTON, in Geography, a county of America, in the south-west corner of Vermont, bounded by Windham county on the east, the state of New York on the west, Rutland county on the north, and the state of Massachusetts on the south. It contains 19 townships, of which Bennington and Manchester are the chief. It has 12,524 inhabitants, including 16 slaves. The mountains abound with iron ore, which employs already a furnace and two forges.**

**Bennington, the shire town of the above county, and the principal town in Vermont, including in the compact part of the town about 160 houses, is situated near the foot of the green mountain, near the south-west corner of the state, 24 miles easterly from the junction of Hudson and Mohawk rivers, and about 52 miles from the south end of lake Champlain, at the confluence of the east and west bays; 55 miles from Rutland, 202 north-easterly from New York, and 300 in the same direction from Philadelphia. N. lat. 42° 43'. W. long. 73° 10'. It has a number of elegant houses, and is a flourishing town, containing 2,400 inhabitants. Its public buildings are a congregational church, a court-house, and jail. It is the oldest town in the state, having been first settled in 1764. Within the township is Mount Anthony, which rises to a great height in a conical form. The defeat of the British in two battles fought near this town, in 1777, contributed in a great measure to the subjection of the Indians, and to the surrender of General Burgoyne's army.**

**BENNISCH, a town of Silesia, in the principality of Jägerndorf.**

**BENOIST, St. a town of France, in the department of the Loiret, and chief place of a canton in the district of Gien; 6 leagues south-east of Orleans.**

**BENOIT, St. du Saulx, a town of France, in the department of the Indre, and chief place of a canton, in the district of Argenton; 34 leagues S. S.W. of Argenton. N. lat. 46° 27'. E. long. 10° 17'.**

**BENOIT, St. de Sercyf, a town of France, in the department of the Ain, and chief place of a canton, in the district of Bellelay, 13 leagues south-west of Cléry.**

**BENOIT, or Benedictus, Renatus, in Biography, a famous doctor of the Sorbonne, and curator of St. Eulphius at Paris, was born at Sevinieres near Angers; and being a secret favourite of the Roman Catholic religion, he published, for the benefit of the people, a French translation of the Bible, which had been made by the reformed ministers of Geneva; but as soon as it was published, it was condemned. Benoit was appointed by Henry III. in 1587, regius professor of divinity in the college of Navarre at Paris; and some time before the death of this prince, he published a book, entitled "The Catholic Apology," the design of which was to shew that the Protestant religion, professed by Henry, was no just reason for depriving him of his right of succession to the crown of France. This was followed, in 1590, by a defence of the same book. Benoit afterwards assisted at the assembly in which Henry IV. abjured the reformed religion; and he was promoted by the king, in 1597, to the bishopric of Troyes in Champagne; but he was so obnoxious to the pope, on account of his translation of the Bible, his favour to the protestants, and his fireminded assertion of the liberties of the Gallican church, that he could never obtain his bull, to be installed; however, he retained the temporalities till the year 1604, when he resigned the bishopric. He died at Paris in 1608. He was the author of several treatises, which are now not worth mentioning. Gen. Dict.**

**BENOIT, Elias, a learned French Protestant minister, was born at Paris in 1640. After the revocation of the edict of Nantes, he fought refuge in Holland, and became pastor in the church at Delf, where he died in 1738. He was patient, timid, submissive, and laborious, and in his domestic connection he found ample occasion for the exercise of the virtues that distinguished his character. Of his wife he gives the following account: "I married a wife possessed of all the faults that could torment a peaceable husband; covenient, pert, peevish, and capricious; by her unwearied spirit of contradiction, she plagued, in every possible way, her wretched mate for the space of 47 years." His only relief was incessant study, the fruits of which were the following publications, written in French, viz. "A History of and Apology for the Retreat of the Paltors on account of the Persecution in France," 2 vol. 1658; "A History of the edict of Nantes," 5 vol. 4to. Delit. 1693; and "Miscellaneous Remarks, critical and historical, on Toland's two Differtations," 8vo. 1712. Noiv. Dict. Hill.**

**BENOIT, Father, a learned Marinone, whose Arabic name was Ambaruch, was born at Gufta, in Phcenicia, of a noble family, in 1603. Having studied from the age of nine years to twenty-two, in the Maronite college at Rome, he returned...**
returned to the east, and was ordained priest by the Moravian patriarch of Antioch, and from thence he was sent to Rome, in order to transact some affairs referring to the church at Antioch. Previously to his proposed return, he was invited to Florence by the grand duke Cosmo III. where he was employed in arranging the types which Ferdinand de Medina had caused to be founded for printing books in the oriental languages. Under his inspection several caligra manucripts were printed. Cosmo, in order to retain Benoît in his service, appointed him Hebrew professor at the university of Pisa, where he acquired great reputation for his character and learning among the literati of Italy. At the age of 44, he entered into the society of Jesuits, and was employed by Clement XI. as one of the correctors of the editions of the Greek fathers; and on the solicitation of cardinal Quirini, whom he had assisted in his studies, he published, at an advanced age, an edition of 4 Ephrem Syrus; the two first volumes of which, begun in 1736, were, after twelve years' labour, given to the public; but in 1742, whilst he was prosecuting the third, and after he had advanced through one half of it, he was carried off by a severe illness in his 86th year. This volume was completed by Affenianni, in 1744. Benoît also translated part of the Greek Menology, and wrote some dissertations relating to the works of Ephrem Syrus. Moretti. Gen. Biog.

Benoît, du Sautu St. in Geography, a town of France, in the department of the Indre, and chief place of a canton in the district of La Blan. The place contains 1591, and the canton 316 inhabitants; the territory includes 355 kilomètres, and 14 communes.

Benon, a town of France, in the department of the Lower Garonne, and chief place of a canton, in the district of Rochefort; 1/4 leagues N.N.E. from Rochefort.

Benou, a town of Arabia, 110 miles south-east from El Catt.

Benown, the capital of Ludmansk, an interior kingdom of Africa, placed by Rennell in N. lat. 15° 6' W. long. 67° 58'. See Ludmarch.

Benrad, a town of Germany, in the circle of Welfphalia, and duchy of Berg; 7 miles S.S.E. of Duffeldorp.

Bensel. See Beneslow.

Bensberg, a town of Germany, in the circle of Welfphalia, and duchy of Berg; 7 miles east of Mulheim.

Bensera, Isidore de, in Biography, a celebrated French poet, was born at Lyons, near Rome, in Normandy, in 1612. The vivacity of his genius, and the pleasantery of his conversation, were so well calculated to secure his reception at court, and to promote his advancement under the patronage of cardinals de Richepin and Mazarin, who provided for him in a liberal manner, gifts and pensions. The poetry in which he excelled was that of the gallant and satirical kind, composed for the court-ballets, before operas came into vogue; and in these ingeniously adapted to the personages of antiquity the known characters and adventures of those who represented their partes in fiction. His success in this way induced him to make an attempt for turning all Ovid's Metamorphoses into rondels; but this work, though favoured by the king, and set off by all the ornaments of engraving, was rejected from its first appearance. As he aimed at point and concis, the prevalence of a better taste in the age of Lewis XIV. sunk him in neglect. In 1674, he was chosen a member of the French academy. Towards the close of his life, he abandoned the court, and retired to Gentilly, where he embellished his house and gardens with a variety of ornaments that indicated his poetical genius. He was much afflicted with the stone, the exterminating pain of which he is said to have endured with fortitude and resignation. His later years were consecrated to works of petty and devotion; and he translated almost all the Psalms. He died in 1691, and after his death his works were printed in three volumes. Gen. Dict. Nouv. Dict. Hist.

Benshausen, in Geography, a town of Germany, in the circle of Franconia, and county of Henneburg; 7 miles south-east of Smalkalden.

Bensheim, a town of Germany, in the circle of the Upper Rhine, and archbishopric of Mayence; 20 miles north of Heidelberg.

Benson, George, in Biography, a distinguishing divine of considerable reputation for biblical learning, was born at Great Salkeld in Cumberland, on the 14th of September 1693. When he had finished his preparatory studies, he completed his education for the ministry at the university of Glasgow. At Abingdon in Berkshire, where he first settled as pastor in the year 1722, he continued for about seven years; and besides a fœdulous attention to the duties of his office, he employed his time in a critical study of the sacred writings. His first work, published during his residence in this town, was "A Defence of the Reasonableness of Prayer," accompanied with a translation of a Cicerone of Maximus Tyronus, on the same subject, together with remarks upon it. A new edition of this, and of his piece on predetermination, was published in 1737, under the title of "Two Letters to a Friend, &c." In 1729, he left Abingdon, and removed to the charge of a congregation in Southwark, with which he continued for eleven years. In 1731, he published "A Paraphrase and Notes on St. Paul's Epistle to Philemon," in imitation of the manner of Mr. Locke; and to this he added "An Appendix, shewing that St. Paul could neither be an enthusiast nor an impostor, and consequently the Christian religion must be, as he has represented it, heavenly and divine." This argument was afterwards illustrated and improved in the most masterly manner by lord Lyttelton. This work, being favourably received by the public, was succeeded by Paraphrases and Notes, after the same manner, on the two epistles to the Thessalonians, the first and second epistles of Timothy, and the epistle to Titus; together with disquisitions on several important subjects, particularly on inspiration. In 1735, he published, in three thin volumes, 4to. "The History of the first planting of the Christian religion, taken from the Acts of the Apostles, and their Epistles, &c." A second edition of this work, commonly bound up in one large volume, was published in 1756. In 1743, Mr. Benson was chosen pastor of the congregation of protestant dissenters, in Crouch End Friars, London, in the room of Dr. Harris; and in this connexion, with the learned and candid Dr. Lardner as his assistant for some years, he continued till his death, which happened on the 6th of April, 1762. In 1743, he published his treatise "On the Reasonableness of the Christian Religion, as delivered in the Scriptures;" and in consideration of his great abilities and learning, the university of Aberdeen conferred upon him the degree of doctor in divinity. Dr. Benson, having finished the epistles of St. Paul, on which he intended to write Paraprases and Notes, proceeded to explain, after the same manner, the seven cathoic epistles, viz. that of St. James, the two epistles of St. Peter, that of St. Jude, and the three epistles of St. John. A volume of miscellaneous terms, in 1747, was the last of his public works. His pathological writings, edited by Dr. Amory, appeared two years after his death, containing a life of Chrift, and other theological essays. The labours of Dr. Benson in sacred literature met with a very favourable reception in foreign countries, as well as in Great Britain and Ireland, from the truly inquisitive and learned, and introduced him to a friendly acquaintance and correspondence with many persons, eminent for their literature and rank in the established church, as well as among the dissenters. Of thes
BEN

there we may enumerate for Peter King, lord chancellor of England; lord Barrington; archbishop Herring; bishops Hoadly, Butler, and Conybear; Dr. Leland, and Dr. Dulach of Ireland; Dr. Jonathan Mayhew of New England; professor Michaelis of Gottingen; Dr. Whistham of Edinburgh; Dr. Watts of London; Dr. Taylor of Norwich; and Mr. Bann of Birmingham. His commentaries and notes on the epistles are defendedly held in high estimation. The learned John David Michaelis, one of the professors in the university of Gottingen, proposed translating them into Latin, and in 1745, published his paraphrase on the epistle of St. James, with additional notes. Several of his other tracts were translated into German by M. Bamberger, a Protestant divine at Berlin. As a zealous friend to religious toleration and free inquiry, and with a view of vindicating and recommending them, he published a defence of Servetus, and an account of Dr. Leighton's performance of Dr. Leight. Biog. Brit.

BENSON, in Geography, the north-westernmost township of Rut and county, in the state of Vermont, North America, is situated on the west side of Lake Champlain, 57 miles N.N.W. of Bennington, and has 659 inhabitants.

BENTAVEO, in Ornithology, the French name of that species of Smike, called Larina phalina, by Linneus.

BENTENDORF JELPEZIA, in Geography, a town of Hungary, 6 miles north west of Rosenburg.

BENT GRASS, in Botany. See AGrostis.

BENTHAM, JAMES, in Biography, was born at Ely in 1708, and educated for the church at Trinity College, Cambridge. After having held in succession several livings in the counties of Cambridge and Norfolk, he obtained, in 1729, a prebendal stall in the church of Ely, where he had an opportunity of cultivating his natural taste for church architecture and antiquities. The result of his observation and research was published under the title of "The History and Antiquities of the conventual and cathedral church of Ely, from the foundation of the monastery, A. D. 675, to the year 1771, illustrated with copper-plates," Cambr. 1771, 4to. The introduction to this work contains an account of Saxon, Norman, and Gothic architecture, and has been frequently cited as authority by later writers on these subjects. The grand repair of this church, entrusted to the superintendence of Mr. Bentham, afforded him an opportunity of investigating the principles upon which edifices of this kind were constructed, and lugged to him the idea of a general history of ancient, architecture in this kingdom; and for this purpose he occasionally employed himself in collecting materials almost to the close of his life. He also interceded himself in the improvement of his native country, by planning turnpikes roads, and proposing the drainage and inclosure of parts of the Ely Fens; and some of his schemes were beneficially executed. In such useful occupations, and the faithful discharge of his professional duties, he conducted his life, by a course of temperance which his naturally tender constitution required, to his 80th year. He died Nov. 17, 1791. G. G. Biog.

BENTHEIM, in Geography, a county of Germany, in the circle of Westphalia, about 40 miles long, and from 12 to 15 broad. It is bounded by the province of Overyssel and the bishopric of Munster, and abounds with wood, quarries of stone, game, and venison. The chief part of this territory is distributed into fertile corn-fields and beautiful meadows, which feed a great number of sheep and cattle; furnishing the inhabitants with an ample supply of the necessaries of life, and enabling them to make profitable exports. The principal river is the Vechte, which traverses the whole country. It is inhabited by Lutherans, Calvinists, and Roman Catholics; and its traffic conflicts in linen, thread, wool, yarn, flax, wood, cattle, and honey. Its towns are Bentheim, Schuettorf, Northorn, and Niehous. In 1754, count Frederic Charles Philip, mortgaged this county to the house of Hanover, for an advance of money. The count of Bentheim or Benth, has a seat and voice in the college of the Westphalian courts of the empire, and at the diet of the circle.

BENTHEIM, a town of Germany, and capital of the above county, is seated partly on an eminence, and partly on a river of the same name. It contains one Calvinist, and one Roman Catholic church. The castle or palace stands on a high rock north of the town, and is surrounded with towers. Bentheim is distant 26 miles N.N.W. from Munster, N. lat. 50° 21'. E. long. 7° 1'.

BENTHOORN, a town of Holland, 6 miles S.S.W. of Leiden.

BENTHULUD, a town of Africa, in the kingdom of Fez, at the foot of Mount Atlas.

BENTHUYSEN, a town of Holland; 6 miles south of Leiden.

BENTINCK, WILLIAM, earl of Portland, in Biography, a favourite minister of king William III. was born in Holland, and descended from an ancient and noble family in the province of Gelderland. He accompanied the prince of Orange to England in 1679, as gentleman of his bed-chamber; and when the prince became stadholder, he was promoted to the command of the favourite regiment of Dutch guards. In 1675, he manifested his attachment to this prince, by sleeping in the same bed with him when he had the small pox, in consequence of medical advice; and by thus exposing himself to the infection of a dilterminer with which he was actually infected, he laid the prince under an obligation, of which he was never unmindful. He took an active part in the preparations for the revolution in 1688, and in the progress of that event; and upon the prince of Orange's accession to the throne, he received many marks of royal favour. Sustaining several high offices near the king's person, he was naturalized, and in 1689, he was advanced to the rank of an English nobleman, with the title of baron of Cirencester, vicount Woodstock, and earl of Portland. In the following year, he acted as envoy to king William at the grand congress held at the Hague. The royal favour, however, by which he was distinguished, and particularly the grant of several lordships in Denbighshire, which were part of the demesnes of the principality of Wales, occasioned, in 1693, a warm opposition in the house of commons; but though this grant was revoked, in consequence of an address to the king, the earl was recommissioned by other liberal grants from the crown, which constitute a great part of the present ample possessions of the family. This nobleman attended king William in his campaigns in Ireland and Flanders, and distinguished himself, as a military officer, on various occasions. After the conclusion of the peace of Ryswick, in the negotiation of which he had a principal concern, he was nominated embassador-extraordinary to the court of France, where he received the highest distinctions. On occasion of a jealousy, excited by the royal favour to a young Dutchman, named Keppel, afterwards earl of Albemarle, the earl of Portland resigned his posts in the king's household, and withdrew from affairs of state: but he still retained some portion of the king's esteem and confidence, and was entrusted with the administration of Scotland, and with the negotiation of the famous treaty for the succession to the throne of Spain, called the "partition-treaty," which was afterwards the subject of an impeachment of the earl by the house of commons. The king's death, in 1701, terminated the earl of Portland's public life, and all hostilities against him. Of the attachment of his royal matter, however, he had the most satisfactory evidence; when, on his death-bed, with his last words he inquired
inquired for him, and on his approach, laid hold of his hand and pressed it to his heart. The close of the earl's life was spent in retirement at Bath, where he employed himself in acts of charity, and in the improvement of his fine gardens. He died Nov. 23, 1709, in the 69th year of his age, and was buried in Wellminder Abbey. He left children of both sexes by his two wives. Anne, daughter of Sir Edward Villiers, and Jane, daughter of Sir John Temple.

His temper was, like that of his royal master, grave, sedate, and in fine to reformers; and his denominations lofty, without pique. Although he was an object of jealousy and envy, there were more natural and politcal than personal; and his general character was that of an able and upright man, connected with private virtue. Bung Britt.

BENTIVOGLIO, Guido, Cardinal, was born of a noble family at Ferrara in 1573; and after having studied at Padua with great reputation, he returned, in 1577, to his own country, where he displayed much dexterity in reconciling his brother, the marchese Hippolito, with cardinal Albani, and the general of the church, and in concluding peace between the pope and Cesar. Having filled this transcendent post, he was appointed by pope Clement VIII. his private ambassador, and a moved to complete his dynasty at Padua. He then settled at Rome, and by his prudence and industry acquired great esteem. After having performed, from 1577 to 1589, the office of nuncio in Flanders and allied in France, in the year 1621, he was raised to the dignity of cardinal by pope Paul V. He was also appointed by Lewis XIII. protector of the French nation in Rome; which office he declined on becoming bishop of Terracina in 1641. On the death of Urban VIII. in 1644, he was sought to be the most proper person for the honour of succeeding him; but when he entered the conclave, in the hottest and most vital fray of the year, he was seized with a fever, which terminated in his death on the 7th of September, at the age of 65. The principal of his works, which are held in high estimation, are his "History of the Civil Wars in Flanders," written in Italian; and a work published at Cologne in 1644, and since translated into foreign languages; "Memoirs" of Lewis I. an "Account of Flanders," and a collection of "Letters," read by the most approved specimens of epistolary writing in the Italian language. Moreni. Gen. Dig.

BENTIVOGLIO, in Geography, a small town and fortified palace of Italy, in the state of the church; 18 miles north of Bologna.

BENTLEY, Richard, in Biography, a very eminent critic, was born at Otton, near Wakefield in Yorkshire, on the 27th of January 1662-3, and after receiving the rudiments of classical learning at the free school of Wakefield, was entered in his 16th year at St. John's college, Cambridge. In 1681, he left the university, and became a schoolmaster at Spalding. From this situation he was soon removed to be preceptor to the son of Dr. Thibald Pegell, dean of St. Paul's, who appointed him to be his domestic chaplain. In February 1681-2, he published his first work, which was a Latin epitome to Dr. Molière, containing "Critical Observation on Molière's Chronicon," and at the same time be had the honor of being selected as the first pencil to preach Boyle's lecture, founded for the verification of natural and revealed religion. The failure of the eight editions, which he delivered on this occasion, and which were afterwards published and transcribed into most of the modern languages of Europe, was the loss of much time, and the confusion of so absurd and jestless system, from the fanciful of the soul, from the doctrine and origin of human bodies, and the origin and name of the world itself. While he carried on this lecture, he maintained a philosophical correspondence with Dr. Isaac Newton, whose friendship he ardently cultivated, nor did he write anything on this occasion without this shun to philosopher's approbation. In 1692, he was installed by bishop Stillingfleet at a pulpit of Worcester; and in the following year, he was appointed keeper of the royal library at St. James's. In 1695, he was admitted to the degree of doctor of divinity; and he delivered a discourse on the day of the public commencement from 1 Pet. iii. 15. It should, that he was soon afterwards, "ad eundem," in the university of Oxford. His Annotations on Calimachus, were, inserted an edition of that poet, published in 1657, by Gravina; and in the same year Dr. Bentley himself published, at the end of Weston's Reflections on ancient and modern learning, his "Difficulties on the Epistles of Themistocles, Socrates, Euclid, Phalaris, and the fables of Aesop." This publication was succeeded by a literary controversy, which engaged at the time a great degree of public attention. The immediate subject of this controversy was the genuineness of the epistles of Phalaris. In order to give our readers some notion of its rise, progress, and issue, we will detail the following particulars. Soon after Dr. Bentley was made royal librarian, the honourable Mr. Boyle, who was about to publish an edition of the supposed epistles of Phalaris, applied, by means of a book-seller in London, to Dr. Bentley for the use of a MS. in the king's library, which, after much solicitation and delay, was at length obtained; but before the collation could be completed, and indeed, about six days after the manuscript had been delivered, it was remanded by Dr. Bentley, with many urging and disparaging expressions, both of Mr. Boyle, and the work. This conduct, Mr. Boyle, in the preface to his edition of Phalaris, publicly retracted; and in return, Dr. Bentley, in the above-mentioned dissertation, endeavored to elince the spuriousness of the epistles that had been published, adding some reflections on Mr. Boyle's edition and version. In 1668, Mr. Boyle retorted, with effusives of wit and perusal abuse, in a treatise entitled "Dr. Bentley's Difficulties on the epistles of Phalaris, and the fables of Aesop examined," and commonly known by the title of "Boyle against Bentley," a second edition of which was published in 1672. In 1669, Bentley re-established in the same style, in a piece usually denominated "Bentley against Boyle," reprinted in 1777, by Melito. Bowyer and Nichols, with slight notes and observations, collected from, or communicated by bishops Warburton and Lowth, Mr. Upton, Mr. W. Clarke, Mr. Markland, Dr. Salter, Dr. Owen, and Mr. Touph. Among the wits and critics, who united as auxiliaries of Boyle, were Swift, Pope, Gilt, and Molyneux; and it must be allowed, that they proceeded with an unwarrantable severity in attacking the moral character and literary acquirements of their adversary. Bentley, however, though wounded, published the contest with mighty imputations, and in the event with full force, so far as the authenticity of the epistles refuted to Phalaris was concerned. By prejudice and passion have inflamed, it has been very generally acknowledged that Bentley had not only the evident advantage in respect to learning and argument, but that he is little, if at all, inferior to his antagonist in point of wit and farce. The reputation of Dr. Bentley, during the progress of this literary quarrel, was in very materially affected; but before its complete termination, he was presented by the crown in 1703, with the honourable and lucrative office of master of Trinity college, Cambridge; and in the following year collated archbishop of Ely. In the former station, he introduced reform, and curtailed faculties, and thus improved the
the ill will of some of the senior members of the college; but as he appeared to have exercised undue authority, and to have consulted his own advantage more than the public, a charge was exhibited against him in 1729, by the vice-chancellor, thirty of the senior fellows, and other members of the college, for peculation, breach of the statutes, and other acts of mal-administration. The charge was presented to the bishop of Ely, as visitor of the college. But Dr. Bentley contended, that the crown was the visitor; and upon this a law-suit commenced, which was not terminated till the year 1731, when the crown asserted its visitatorial power, but declined interfering in the present instance. It appeared afterwards, that, upon the whole, the charges against the matter were well founded.

In 1710, Dr. Bentley published at Amsterdam his critical annotations on the two first comedies of Aristophanes; and, about the same time, at Rheims, his emendations of the fragments of Menander and Plulemon, under the figured name of "Philaleutherus Liphienus." This latter was undertaken with the view of disparaging a similar performance of Le Cleer, and thus by degrading his literary character in the public estimation, to set aside a scheme, which was then in agitation, for inviting him to England, by the offer of some considerable church preferment. In the year 1711, he published his long expected and much commended edition of "Horace." This correct and elegant edition of Horace, which was pronounced by Dr. Hare to be the completest work produced by criticism since the restoration of learning, was printed in 4to. and dedicated to the earl of Oxford. It was succeeded, in 1713, by some excellent remarks on Collin's discourse of free-thinking, published under the former name of "Philaleutherus Liphienus," and dedicated to Dr. Hare. In 1716, Dr. Bentley was appointed regius professor of divinity; and in the same year he circulated proposals for a new edition of the Greek Testament, with St. Jerom's latin version. These proposals were the subject of severe animadversion by Dr. Middleton, who professed a serious conviction, that Dr. Bentley had neither talents nor materials proper for the work, and that religion was much more likely to receive detriment than service from it. Several pamphlets were published on the occasion; and it is much to be regretted, that a work of such importance to sacred literature and biblical criticism was abandoned. The completion of this noble undertaking was the principal employment of the latter part of Dr. Bentley's life. In the prosecution of it he had collected and collated all the MSS. of Europe to which access could be obtained; and for this purpose, his nephew, Thomas Bentley, L.L.D. well known in the republic of letters, had travelled through Europe at his uncle's expense; the whole was completed for publication; but when he determined not to let it appear during his own life, the sum of 200L. which he had received in part of the subscriptions, was returned to the subscribers. A circumstance occurred in 1717, which materially affected the doctor's reputation, and which was attended, at least for a time, with detrimental conseqences to himself. Upon the creation, by royal mandate, of several doctors in divinity, Dr. Bentley demanded from each of them, besides the customary perquisite, an extraordinary fee of four guineas. In this demand they acquiesced, on condition that the money should be restored, if it should appear that Dr. Bentley had no right to enforce it. Dr. Middleton, however, same time after, obtained a decree for the repayment of the money; and in consequence of this decree, Dr. Bentley was arrested, and appeared by his proctor before the court of the vice-chancellor. On this occasion, the beadle testified on oath, that Dr. Bentley had declared, "I will not be concluded by what the vice-chancellor and two or three of his friends shall determine over a bottle;" and for this expression he was imprisoned by the vice-chancellor, without a citation or hearing, from all his degrees, and afterwards by the caput deprived of all his privileges and honours, as well as degrees, in the university. Dr. Bentley appealed to the king, and after successive references to the council and to a committee of council, and to the court of king's bench, and many delays, the university received a mandamus in February 1718, which reversed all their proceedings, and required a restoration of Dr. Bentley to all degrees, honours, &c. of which he had been deprived. In 1726, he published an edition of "Terence and Phadrus," and in 1734, the last of his works, which was his edition of "Milton's Paradise Lost," and which made no addition to his reputation, though it has been said that many of his corrections of that poet have been unreasonably objected to by bishops Pearce and Newton. This work was undertaken at the request of queen Caroline. Dr. Bentley died on the 14th of July 1742, in the 81st year of his age, and was buried in the chapel of Trinity college. When we consider the unquestionable abilities and erudition of Dr. Bentley, it may excite some degree of surprise, that his literary character should have been held in much higher estimation by foreigners, than by his own countrymen. This may be partly owing to that pride, petulance, and irritability of temper, with which he, in common with many others who have excelled in verbal criticism, seems to have been chargeable; to the personal disputes in which he was engaged; and to the political differences that disquieted the period in which he lived. But, perhaps, it arose principally from his having, in the clafs of his adversaries, the poets and wits of the age, and from their having made him the object of their satire and ridicule. The aperoiir of Mr. Pope, who attacked him in the character of Ariftarchus (works, vol. iii. p. 207—211.) has, however, been ascribed to personal resentment. Whilst they were both together at dinner with bishop Atterbury, Dr. Bentley was questioned as to his opinion of the English Homer; and, after some demur, being urged to speak out, he said "the verses are good verses, but the work is not Homer; it is Spondatus." Another circumstance, which contributed to degrade Dr. Bentley in the estimation of some of his contemporaries was that love of money, which he seems to have unduly indulged, and which involved him in disputes that were dishonourable to him. As to the charge of scepticism, with respect to revelation, alleged against him by Mr. Whilton, it does not appear to have been well founded. Dr. Sailer deiphers him as having been a very amiable and pious man in private life, and as possessing much good nature, though he has been otherwise represented. Against the disparaging judgment of the learned bishop Lowth, who allows him to rank only among grammatical and verbal critics, may be confuted the encomium of Dr. Samuel Clarke, eminently distinguished by his literature and critical discernment, who, in the preface to his edition of Cæsar's Commentaries, speaks of him as "vir in hujusmodi rebus peritissimus, incomparabiliter et criticis omnibus longe sumptuosissimo, et fugacissimo auctore." The judgment of posterity, more impartial than that of his contemporaries, has allowed Dr. Bentley's profound skill in the idioms of the Latin and Greek languages; and though, as a verbal critic, many of his emendations are un sanctioned by the authority of ancient MSS. they frequently approve themselves as just and reasonable, and are regarded as real improvements. It must be acknowledged, however, that those corrections of ancient and modern authors, which depend upon mere conjecture, and which suggest what might, or ought to have been written, rather than what
what they actually did write, extend the province of criticism beyond its just limits; and when they afford scope for the unwarrentable exercise of fancy or judgment, they should be very cautiously admitted. In this way doctor Bentley is said to have incurred the charge of temerity and presumption. The son of Dr. Bentley, who was called after his own name, was a gentleman of acknowledged ingenium, taste, and learning, and is known as the author of several publications, and particularly of a tragedy, entitled "Philodamus," published by D. J. in 1767, and deemed by the late eminent poet M. Gray, as one of the most capital pieces in the English language. His youngest daughter married a gentleman of the name of Dr. Cumberland, Bishop of Peterborough, whose fame is well known, "De Legibus Naturae," Dr. Bentley is said to have corrected upon a visit to his for- bidden, who was Bishop of Kilmore in Ireland. The son of this bishop, Richard Cumberland, Esq., is well known by his ingenious writings, and generally by his judicious and elegant prose, "De Bata."

BENTON" in Geography. See CULTA.

BENTLY, a mountain of the island, in the county of Penz, 2,520 feet high. See GRAMPIAN MOUNTAINS.

BENY, a town of France, in the department of the Calvados, and the canton of Caen, 24 leagues N.W. of Caen.

BENTINO, Le, a town of France, in the department of the Calvados, and chief place of a canton, in the district of Vire, 72 leagues S.W. of Caen. The town contains 742, and the canton 13,913 inhabitants; the territory includes 775,950 acres, and 21 communes.

BENZ, a town of Hungary, in the county of Zemplins-puszta, situated on the river Bodrog, and noted for its excellent wine, not inferior to Tokay.

BENYOWSKY, MAURITIUS AUGUSTUS. Count de, in Biography, magnate of the kingdoms of Hungary and Poland. A singular adventurer, was born at Verbowa, in the county of Nitra, in Hungary, in the year 1741, and educated for military service, to which he devoted himself from his youth. Being wronged in his paternal inheritance by his family, he fled by force the cattle which was his father's inheritance; in consequence of which he was deprived of his whole property by a decree of the chancery at Vienna, and was obliged to fly for refuge into Poland. Here he resided, in 1765, in the conspiracy against king Stanislaus, and in the course of the irregular service he was taken prisoner, held in 1768, and after wards in 1769, by the Russian army; he was treated with severity, because he had edited his papers, and because he was forming plans for the liberation of himself and his companion. The Russian conveyed him to Cahan, where he was allowed to live at large, under the watch of the guards, as a state-prisoner; but here his temporary disposition recommended him to a party, which was then forming a conspiracy against the Russian government, in the execution of which he was invited to assist. But the plot being discovered, he was exiled to Siberia; and after a tedious journey and voyage of twelve months, during which the count made five unsuccessful efforts for escape, he arrived on the 20th of December 1770, at Kamtschatka, and was conducted to the town called Novoretzkoy Olgop, or Bolshevikle, where he and his companions in exile were informed that they must provide for themselves, and where they were furnished with the necessary articles and provisions. Bisected with the prescribed mode of savage life, the count began to concern measures with his fellow-prisoners for their escape; and in the mean time, he improved his circumstances by opening a school, in which he educated the son and three daughters of the governor, M. Nilow, or Niloff, and by his knowledge of the game of chess, at which he played with some merchants, on behalf of the Hettman of the Cossacks, who allowed him a certain proportion of the fish which he won. Having gained the confidence of the governor and the inhabitants of Aphanasia, one of his daughters, he proceeded in maturing and accomplishing his plan of liberation; but before its execution, the secret was disclosed, and the force of the settlement was employed in preventing the contrivances. In the course of this occupation, the governor was killed; but the copies had succeeded; seized a vessel, and, accompanied by Aphanasia, who chief to follow a margin, was invited to take their final leave of Kamtschatka. Their whole number, including the exiles, women, and the ship's crew, amounted to 96 persons. After enduring many naval hardships at sea, the vessel arrived at Japan; and on the 14th of August 1771, he anchored on the island of Unmy Lagoon, which he places in N. lat. 29°, and which must consequently he between Japan and the island of Looekio. This island, according to his account, is absolutely independent both of China and Japan; its inhabitants are mild, virtuous, and in a high state of civilization; and they are said to have been converted to Christianity by a Portuguese missionary John Ignatius Salis, who arrived in the island in 1749. Upon visiting this island, whither he promised to return, he failed for forming a colony, and arrived here on the 7th of August; but meeting with an opposition on his landing, he made a great slaughter among the natives. At length he opened, by means of a Spaniard, who resided on the island, a more friendly intercourse with the inhabitants of another island, and offered Huzapo, their prince, in a war against one of his neighbours. After a stay of about sixteen days on this island, he departed and sailed for Macao, in the harbour of Canton, in China. Here his female companion, Aphanasia Nilow, died. During his stay in this place, he made some attempts for procuring leave to go to Canton; but when these proved ineffectual, he determined to fail for Europe. Accordingly, in his way thither, he arrived at the isle of France, March 16th 1772, and having touched at the isle of Madagascar, he landed in France in July, and was well received by the French ministry.

Of the proposals made to the ministers of France by this adventurer, we have no documents; but he seems to have been regarded by them as a fit person to be employed in establishing a settlement in the island of Madagascar. With this view they furnished him with a body of troops, in 1773; and in his way thither he touched at the isle of France, in order to solicit the co-operation of the chiefs of that island. Jealously, and the dread of a rival settlement, prevented his obtaining their concurrence; and therefore, after some delay, he proceeded to Madagascar, and landed there in February, 1774; forming his settlement at the bottom of the bay of Antongil, at the mouth of the river Binghalle. The count made little progress in accomplishing the object of his mission, although he expended on account of the French government a sum amounting to 550,000, and therefore, towards the end of the year 1779, commissioners were deputed to examine the state of the settlement, and convey the count to France. In the mean time, the enterprising adventurer had contrived to raise himself to consequence in the island by a curious stratagem. The Spanish, constituting one of the distinct nations of Madagascar, had been formerly governed by a chief, whose name was Hamaca, and as he had left only one daughter, who had been taken prisoner and sold to foreigners, his family was supposed to be extinct. Of this circumstance the count artfully availed himself; and obtaining the testimony of an old negro woman whom he had brought with him from the Loo. l.
life of France, who declared that she knew him to be the son of Ramini’s daughter, her own companion in slavery, he succeeded in his views of being publicly acknowledged as the heir of Ramini. Under this character he was vanned with sovereignty, formed alliances with other tribes, made war and peace, and received tributes from the vanquished.

But as his European resources were with-held, he renewed the service of France, and procured his subjects to permit him to return to Europe, for the purpose of forming an alliance with France, or some other power, and for making commercial arrangements with a view to the improvement of a settlement on the island. Accordingly, he departed for Europe in November 1776, on board a brig which he had freighted to the Cape of Good Hope. With this event his own narrative terminates. Among his state papers, however, we find his proposal to the king of Great Britain, dated Dec. 25, 1783, of which the preliminary article is his being acknowledged sovereign of the island of Madagascar; under which character he offers terms for an offensive and defensive alliance with this country. But it appears, from a declaration prefixed to this paper, that he had previously applied, probably with similar views, to the emperor of Germany. The application to the British ministry, if it was ever made, and if it was ever the subject of discussion, as some have alleged, was not attended with success. The court, therefore, determined to return to Madagascar with such supplies as he could obtain from individuals; and having procured goods and merchandise in London to the amount of 2000l, and finding it difficult to get the flag of any European power to sail beyond the Cape of Good Hope, he departed for Maryland in America, in April 1784. A respectable commercial house engaged in his undertaking, and supplied him with a vessel and goods to a considerable amount.

In this vessel he sailed for Madagascar; and after escaping the hazard of shipwreck on the lee shore of America, and doubling the Cape of Good Hope, he touched at Sofala, and on the 7th of July 1785, anchored in Antangara bay, 10 leagues S.W. of Cape St. Sebastian, in Madagascar, where the cargo was landed. Under an apprehension that the count had been cut off by the natives, the party on board the ship set sail for the island of Joanna, and at Obo, on the opposite continent, sold the ship. The count having a body of natives, commenced hostilities against the French by seizing their house-at-Angouzii. Here he began to build a town after the manner of the country, and from thence he detached 100 men to seize their factory at Foul Point, which he defended and a few of his men at anchor. In consequence of these transactions, M. de Sculliac, governor of the island of France, sent a ship with sixty regulars, who landed, and attacked the count on the 23d of May 1785, in a redoubt which he had constructed, mounting two cannon, and in which he, with two Europeans, and thirty natives, awaited their approach. The blacks fled, and Benoyfley, receiving a ball in his breast, fell behind the parapet, whence he was dragged by the hair, and soon expired.

Whilst none can question the ability and bravery of count Benoyfley, the principles of his conduct are not easily ascertained. His enemies represent him as a tyrant and a robber; and his friends, on the contrary, exhibit him as distinguished by a noble, humane, and generous disposition. Mr. Nicholson, the editor of his “Memoirs and Travels,” who had all the letters and documents before him, declares, that he has “not seen any thing against the count, which will not bear two interpretations, or which has not been written by men who contradict each other, and had an interest in traducing him.” “His conduct in Madagascar,” says Wadstrom, in his “Effay on Colonization,” “defeaves no small portion of admiration, and even of respect; and, all things duly considered, I see no reason, why a monument might not be erected to his memory, inscribed ‘Magnis Tarnis Excidit Ausis.’” A very different character is given of him by M. de Lefeps, in his “Travels in Kamtschatka,” who represents him as perfidious and cruel, and by the Abbé Roehlin, in his “Voyage a Madagascar, &c.” who says, “that he aimed at the conquest of Madagascar by fire and sword, and treated the natives with such cruelty, that he was called by no other name by them than the “Wicked White.” Memoirs and Travels of count Benoyfley, written by himself, 2 vols. 1750.

BENZELIUS, Eric, a learned Swedish divine, was born in 1642, in Wettro-Gothland, and educated under the patronage of a rich uncle at Upsal. He was first preceptor to the sons of the count de la Gardie, chancellor of Sweden; and having completed their education, he travelled through various parts of Europe, cultivating an acquaintance with the learned, and consulting the principal libraries. Upon his return to Upsal in 1665, he was appointed professor of history and morality in the university, and afterwards promoted to the theological chair, and to a seat in the consistory. In 1675, he was made doctor in theology; in 1677, bishop of Strenges; and, in 1700, archbishop of Upsal, occupying also the vice-chancellorship of the university. He died in 1709; and was the author of several dissertations on the lives of the patriarchs, and other parts of ecclesiastical history. He wrote also various theological works, and translated the whole Bible into the Swedish language. Morei.

BENZELIIUS, Eric, son of the former, was born at Upsal in 1673, where he began and completed his studies. Having travelled into Germany, England, and France, he returned to Upsal in 1702, and was appointed librarian to the university, an office which he held for 22 years. In 1724, he was nominated professor of divinity; and afterwards successively created bishop of Gothenburg, Lindskoping, and archbishop of Upsal. He died in 1743. Benelius undertook, in conjunction with other learned men, a review, as well as all books published in Sweden, or by Swedes abroad, as of those works printed in other countries, which had any relation to this kingdom. This publication, containing, besides reviews, some few original acts, was denominated “Acta Literaria Suecia,” and continued for 10 years on this plan by a society of gentlemen, who afterwards formed the royal society of Upsal. See Society.

BENZIE, Island. See Geography, lies on a river of the same name, within Sierra Leone, on the coast of Africa.

BENZOINE, in Botany. See Crotona.

BENZONII. See Laurus.

Benzoin, Benjamin Gum, and Benzoic Acid, in Chemistry and Pharmacy.

The gum benzoin or benzoile, by some called also Aja Duleis, is a very fragrant resin, procured from a large tree found in many parts of the East Indies, Sumatra, Arabia, Perâia, &c. See Styrax Benzoil.

The resin is brought in large brittle masses of a light yellow, intermixed with white nodules, which last are confidered as the finest, and called by some Benzoin Amygdanosides. The smell of Benzoin is extremely fragrant, especially when rubbed or heated: it has scarcely any taint, except previously dissolved in spirit of wine, which it does with ease, into a yellowish tincture. On adding water to this tincture, the resin again separates into a white pulverulent mass, which has received the singular name of Lac Virginiæ, and also Magistery of Benzoin. When gently dried, it forms a white powder, formerly in great request as a cosmetic. It is at least innocent, and its scent is one of the most agreeable. But the most striking ingredient of this resin is the Benzoe Acid, which is of sufficient importance to require

being
being described more at large. If benzoin is gently heated a little above the degree of boiling water, it melts into an adhesive mafs, and at the same time sends out a very copious, derfe, white fume, of an extremely fragrant, diffufive, penetrating fmal, and fo acrid as irresistibly to excite coughing and tears in thofe who are in any degree exposed to it. This fume four fentences on the felf cool body, and then appears in the form of very beautiful fparian crystals, which gradually collect into a bulky fparian mafs, extremely light, and of remarkable elegance and luflre. This cryftalline mafs is the benzoic acid, and its acid property is proved by reddening limes, neutralizing alkalies, and forming with them peculiar falfets: in modern chemical nomenclature called Benzoin. After the greater part of the acid has risen by fublufion, or before it, if the heat be at all increafed, a thin yellow oil rises highly fepmutaneous, but fhrewly imbued with the fcent of the reinf. On further heating, an acidulous liquor comes over, together with a thick fputidations matter: but, however, containing fome of the cryftalline acid, which is not totally expelled till the end of the procfs.

This oil is readily fohibwe in alcohol, and in hot water, but fo fparsely in cold water, that a hot faturated folution will depofit in vacuo almoft its fcent content by cooling.

Several methods have been diveded for obtaining the benzoic acid. The oldest and moft expeditious is by simple fublimation. To procure any quantities of it, put benzoin in an earthen pan; apply to the veflid a large cone of clean white paper,让大家 to the edges of the pan, and let it over an externally fman charcoal, or other fire, just fufficient to melt the benzoin. The acid will rife and cryftallize upon the vefild of the paper cone. However, as in this method the vapour has hardly room to converge, instead of the paper cone, another vefild inverted over that which contains the reinf, and with a small hole drilled through its bottom, may be substituted; and when full, it may be gently shaken, to detach the acid, and again applied. From nine to twelve days may be thus obtained from ftelve ounces of benzoin. The remaining reinf is still very aromatic, and should not be lost.

Another method has been recommended by Scheele, who in his excellent practical observations upon this falt, has treated it with that precision and ingenuity which fo eminently distinguifhes this chemiftr in every fubfjeft of greater or lefs importance and difficulty, which he has illustrated by his labours.

He observes, that besides fublimation, the acid may be extracted by infuion, and with the advantage of obtaining it free from any admixture of oil, which is apt to impair its whitenefs and lufure. If benzoin is boiled with water, and the folution fained while hot, and fuffered to cool, moit of the acid taken up by the hot water & points when cold, and may then be collected pure. This method, however, is imperfect; for as the water does not mix with and divide the gum, this laf foon foyfens, and flinks down, clofly adhering to the bottom of the vefild, and does not allow the water easily to penetrate it. Hence the folution takes place only at the surface of the benzoin.

The fame chemiftr boiled powdered chalk and benzoin in water, and ftriflated the liquor. His cryftals were now depofited on cooling, for the acid had diflocated part of the chalk into a prismatic fhape, which, being very fubtle, remained in the liquor. But on adding fome of vitereric acid, the benzoin acid was again separated from the lime and fell to the bottom in a prismatic form. Subfiftuting alkali for the chalk, the fame effect took place, and the benzoin acid, as before, was precipitated by the vitereric. But this method was still attended with the inconvenience of the benzoin concreting together, which floated on the surface during the boiling. But on substituting quick-lime this inconvenience was avoided; and it is therefore in the following method that the benzoic acid may be procured the moft copiously and the pureft. Upon four ounces of unfurfaced lime pour twelve ounces of water, and after the ebullition is over, add fix pounds more of water; then put a pound of benzoin, finely powdered, into a tin pan; pour on it briskly over sixtens of the above lime water; mix them well together, and then fuccefsively the ret of the lime water. By this method the reinf will be prevented from running together into one mafs. Boil down this liquor (which is of a light yellow) to two pounds, and drain. When cold, add to the liquor muriatic acid gradually, which will produce a white cryftalline deposition, and cont:inue to add the acid till the liquor is supersaturated, and tablets form. The stronger acid thus unites with the lime, and the benzoic acid, now free, being of itself very soluble in cold water, falls down as a white coagulum, which should be washed with more cold water, and gently dried. To give it a cryftalline appearance, difolve it in boiling water, filter it through a cloth, and by cooling it will separate in the form of fparian cryftals, but with fome loss of the acid.

The above procfs of Scheele's may however be a little shortened, if the lime in fubfuance be mixed with the lime water, previous to the addition of the benzoin; for by this method the folution may be at once more concentrated, and lefs of the liquid will fufficie, fo that much of the evaporation will be faved. Any of the stronger acids will difplace the benzoin from lime, but the muriatic is the moft convenient.

Scheele obtained from 12 to 14 drachms of the concrete acid from a pound of benzoin by this procfs.

The benzoic acid, when pure, is quite white; for if yellow, it is mixed with a small portion of the oil of the reinf. Though cryftallized, it is considerably fubtle, and difficult to be reduced to powder. Its taste is fharf, pungent, and acridulous. It roldens tincture of liquor. When cold, it is without fmmel, but on applying heat it fends forth the peculiar graceful odour by which it is characterifed. Heated by itfelf, it chiefly fublimes, but a part is decomposed, giving an acid phlegm, much oil, and carbonated hydrogen gas. It is not alterable in the air, and does not evaporate by keeping in a moderate temperature. Cold water diffoves only about 1/10 of its weight, but boiling water 2/3; and hence the vapours cryftallization from a hot water folution. It makes readily to molt of the alkalies and earths forming benzouts, the properties of which have been but little examined.

The benzout of lime is almost the only falt of this kind found nature. It is contained in the urine of fome animals, particularly the herbivorous quadrupeds, and is affayed by adding to this folution some muriatic acid, by which the benzoic acid is made perceivable.

With potasf this acid forms a readily cryftallizable falt, decomposable, like the reinf of the benzouts, by a ftrong acid.

Most of the metallic oxides are difsolved by this acid, but not the pure metals.

Mr. Hermblund, in a feries of experiments on the action of nitrous acid on the benzout, found that the latter regularly aflumed in the procfs a smell like that of water diffused over bitter almonds, but on the whole, this acid is but with dif-
cult altered in its nature by the nitrous. Distilling the nitro-benzoic acid with pure alcohol, he obtained ethereal liquor, part of which was nitrous ether, but the remainder appeared, by the smell of almonds, to be a dulceif, or ethereal benzoic acid. But these experiments require to be repeated with accuracy, as the powerful operation of the nitric acid on vegetable matter, though highly instructive, is often not a little embarrassing.

Several other substances, besides the resin of benzoins, contain more or less of this acid. The balsam of Peru, and of Styrax, appear to owe to this acid much of their fragrant smell. Ambergris, vanilla, and some of the aromatic barks, and even urine, contain a small quantity of it. When combined with an alkaline or earthy base, it is generally known by a pungent fragrant smell, and dense white smoke, on applying a heat less than is necessary to burn or decompose the substance with which it is united. When kept down by an alkaline or an earth (as in the case of urine), it is separated by a strong acid. It has been supposed, with probability, that the fragrant feet is not proper to the acid: but is owing to the presence of a portion of resins or effamental oil, combined with it in intimate, as to be inseparable by any means hitherto known, without entire decomposition of the acid; and hence too may be explained the very weak affinity of this acid for all bases, which is generally superior to no acid but the carbolic.

Gum benzoins is a substance used in medicine, though still retained in a few preparations of the London and Edinburgh pharmacopoeias. The compound tincture Tinctura Benzois Composita, formerly Basilanum Traumaticum, contains gum benzoins, balsam of Tolou, and aloes; and the benzoic acid enters into the Edinburgh Tinctura Offici Ammoniata, and in some other compounds of foreign importances.

The fragrance of this resin has caused it to be used in perfumery of various kinds. Where the object is merely to produce a penetrating agreeable scent, it may be of considerable use; but as a corrective of foul or contagious air, its powers are very small, by no means comparable to those of the mineral acid vapours, whilst the irritation which it gives to the lungs is more intolerable. Scheele's Essays. Tourcy. Hermblad in J. Phy. tom. 34. &c.

BEOLIPA GULY, in Geography, lies on the east side of the Strait of Dardanelles, near the opening into the sea of Marmora.

BEORI Animal (Laet. Amer.), in Zoology, the Tapir Americanus of Gmelin, &c.

BEOSTER ISLAND, in Geography, one of the Shetland islands, between which and Green island, at the north end of Braha, or Brathy found, is a good channel, that runs out into the sea.

BEOTIA, Cape, lies within the island of Neoropotnt, to the north of Corinth, on the north side of the peninsula, stretching south-cast from Corinth.

BEQUIA, a small island of the West Indies, dependent on the government of St. Vincent, and containing 3,500 acres. It is chiefly valuable from the commodiousness of its fine harbour, called "Admiralty bay." 

BER, a district of Switzerland, in the government of Velen and canton of Beren, comprehending two parochial villages.

BER. See BERSIEE.

BER. See Boule-Comba.

BERABYAN, a long lake in New North Wales, lying N. and S. and running gradually from its north end, till it mixes with the waters of Shoulder lake, at the south end, and where these waters form Seal river, which empties into Hudson's bay, at Churchill fort. The north end of Berabzan lies in about 60° 30' N. lat. and 93° 50' W. long.

BEREA, in Ancient Geography. See BEROVA.

BERAMS, in Commerce, a coarse cloth, made altogether of cotton thread, which is brought from the East Indies, and particularly from Surat.

BERAMUN, in Geography, a town of Egypt, on the Nile; 3 miles north-east of Mansura.

BERAR, a founah, or kingdom of Hidoodtan, bounded on the north by Allahabad and Mawar; on the west by Candeels and Amadeagur; on the south by Tellingana and Golconda; and on the east by Oosif. It contains 13 circuits, divided into 42 pargammahs. The western parts of this province were reduced by Aced; and its revenue under Aurungzebe, as stated by Mr. Fraer, in his "Life of Nadir Shah," amounted to 17,536 lacs of rupees. The principal part of this province is policed by the Berar or Nogpour rajah; and the remainder is held by the Nizam, or founah of the Deccan, who pays to the rajah a "chout," or fourth part of its clear revenues. The inferior parts of Berar are less known than most other countries in Hindooatan; but it is thought to be neither populous nor rich. Its present capital is Nogpur, about midway between Bengal and Bombay. This province produces wheat, rice, poppies, and many sorts of legumes. In the southern part is found the deer, which yields the Berar bone; and the sheep of this province differ from the common species, their neck being lengthened, their tail very short, their ears long, and their wool not curled.

BERARDI, Angelo, in Biography, an Italian writer on music, who published at Bologna a considerable number of musical tracts, between the years 1681 and 1693, which, with a large portion of pedantry and common-place information, contain much curious and useful knowledge. Their titles are: "Ragionamenti Musicali, Musical Differents;" "Documenti Armonici, Harmonical Documents;" "Mismellanea Musicale, a Musical Miscellany;" "Arcani Musicali, Dialogo, Musical Arcana, a Dialogue;" and the "Perche Musica, Musical Definitions." If the whole had been compiled, methodised, and digested into a single treatise, and all the musical information dispersed through these several tracts arranged in a regular and gradual order, a more useful and practical didactic work might have been produced, than Italy seems to have furnished during the 17th century.

BERASTEGUE, in Geography, a mountain of Spain, in the province of Guipuzcoa, 3 leagues from Tolosa.

BERAULT, Nicholas, in Latin Beraldus, in Biography, one of the learned men of the sixteenth century, was either a native of Orleans, or for a long time resided in this place, where he was prosector of the civil law. He was tutor to admir de Coligny; and well acquainted with Erasmas, who, in his "Ciceronianus," speaks with commendation of his ready and flowing elocution, and who, in 1522, dedicated to him his tractate, "De Curtenses Epistolas." Among the Latin works of Berault, were "A Graeco-Latin Dictionary," Paris, 1521; an "Oration on the Peace of Cambray," Paris, 1528; another "On ancient and modern jurisprudence," Lyons, 1533; and "A Dialogue on the faculty of speaking extemporarily," Lyons, 1534. He also wrote paraphrases on the Politics and Economics of Aristote, and notes on the Ruffus of Politian. His comments on the Natural History of Pliny, though not mentioned by Hardouin, are much commended by Erasmas. He was esteemed for his integrity, and greatly regarded by Poncher, archbishop of Sens, a prate distinguished in France by his patronage of literature.

BERAON, in Geography, a royal borough of Bohemia, in a circle of the same name. The chief produce of the circle is wood and corn, and in some parts are found mines of iron.
iron. The town is seated on the river Miss or Mix, 14
m. S. W. of Prague. N. lat. 50° 21', E. long. 14° 25'.

BERBEZC, a river of European Turkey, which runs
through the Bucel, near Tenceni, in the province of Moldavia.

BEREGAL, a town of Spain, in Aragon 3 leagues
from Bailva.

BERERESA. See Brees.

BERBERINA, in Botanologia, a species of TIPULA,
with four, incumbent wings, having the base and marginal
spots white. Schneider. This insect has the thorax and
abdomen red; it feeds on the barberry, and forms small
excreta on the branches.

BERBERIS, in Natural History, a species of VORTI-
CEREA, of a simple oval form, with a broad rigid stem,
and white granulations. Goeze. This is Vorticosa com-
pacta, Druce, ovata pluteus, filipendula of Linn. S. E.
Nat. edit. 12. It is also Berberis berberiformis of Pallas,
and P. dufedipus britannica of Ray. Found in
fish water in Europe; usually in clumps.

BERBERIS, Barberry, or Pippardia Ducis, in Botany.
Gen. 1. 242. Tourne. 375. Smith 131. Cais and Or-
patulous; stigmas ovate, with a narrower base, con-
cave, alternate finer, coloured, deciduous. Cor. petals
fix, roundish, concave, erect-expanstion, scarcely la ger
than the calyx; nectary two, small, roundish, coloured bodies, fast-
tened to the base of each petal. Stam. filaments fix, erect, corn
pressed, obtuse; anthers two, tatterd on each side to the
edge of the filaments. Fr. barbelliform, the length of the
filaments; style none; stigma orbicular, broader than the
germ, surrounded with a sharp edge. Per. berry cylindric,
obtuse, umbellated with a point, one celled. Seed two,
oblong, cylindric, obtuse. B. cretica has three seeds.
Rech.

Elf. Char. Cal. fix-leaved; pet. fix, with two glands at
the claws; style none; berry two-seeded.

Species. 1. B. vulgaris, common barberry; B. dum-
torum. Ray, Sm. 495. Spina acida or oxycantla. Ger-
Eng. 1525. B. vulgaris, purple-leaved barberry. 77. B. can-
adicum, Canada barberry. P. berberis, a species of the
barberry tribe. A shrub rising to the height of 6 or 8 feet; with
leaves upward and branchet, smooth, and finely organised,
leaves, below a large white path, and curved with a whitish
or ash-coloured basis, yellow on the inside; leaves and
branches are armed with sharp thorns, commonly growing
by threes; first leaves elongate, ferteil cliseate, not paited;
stem-leaves alternate; secondary leaves in pairs, entire,
and fertile, with smaller leaves concealed between the lower
leaves and the thorns; flowers toward the ends of the
branches in pendulous raceme, with a leaf to each petal oval;
corolla yellow; petals frequently serrate along the edge, and
at the base of each are two orange-coloured dots, which
are probably the nectaries; anthers red, yellow; stigma
greenish; berries at first green, and, when ripe, changes to a
fine red colour; seeds two, rarely three, fastened at bottom
to a minute tubercle, oblong, smooth, of a purplish red, or
colour, and hard; the seed-bas of an elliptic form. A native of
the eastern countries, and now of most parts of Europe in
woods, coppices, and hedges; in Linn. Eng. only in a few
places, as particularly among the Waal in Holland. The
flowers appear in May and June, and the fruit ripens in Septe-
ber. Miller mentions three varieties of this shrub, viz. B.
fine leaves; B. vulgaris, or with the leaves, occasioned
by the age of the plant; B. with white flowers, having leaves
of a lighter green colour, and the bark water than the
common barberry, and B. creticae procer; erecta nigra flavida.

Tourne, conf. differing only in the colour and flavour of the
fruit. He makes the Caddis barberry a distinct species, and
states, that the leaves are much broader and thicker, and
than that of the common sort, and that the fruit is black when ripe.
It has been formerly observed by Linnaeus, that when bees
in search of honey touch the filaments of this shrub, the
anthers approximate to the stigma, and explode the pollen.
This irritability is so remarkable, that if the filaments are
bent near the base with the point of a pin, a sudden
contraction is produced, and this may be repeated several
times. Dr. Smith, who has made this property the subject of partic-
ular examination, observes (see Phil. Trans. vol. xxviii. p. 153.)
that neither the outside of the filament, nor the hinder has
any irritability; and that the spring of the flaments is owing
to an high degree of irritability in the side of the flament
next the germ, by which, when touched, it contracts, that
side becoming shorter than the other, and consequently
the filament being bent towards the germ. After irritation,
the flaments will return to their original place, and on being
again touched, they will contract as before. The pur-
pose which this curious contrivance of nature is designed
to answer is evident. When the flamma stand in their original
position, their anthers are effectively sheltered from rain
by the conavity of the petals. Thus they probably remain till
some infest, in order to extract honey from the base of the
flower, thruiufs itself between their flaments, and almost
unavoidably touchces them in the mott irritable part; in
this way the imprigation of the germens is performed; and
as it is chiefly in fine funny weather that insects are on the
wing, the pollen is also in such weather most fit for the pur-
pose of imprigation. Another peculiarity ascribed to this
shrub is, that ears of corn growing near it constantly prove
abortive, and that it extends this infestation over them to the
distance of 3 or 400 yards across a field.

Dahanel long since looked upon the salubrious power of
barberry as totally void of foundation, and M. Brouillcot
affirmed Dr. Smith, from his own observations, that the opin-
on, though very prevalent, was altogether groundless.
ham's Bot. Arrang. vol. i. p. 15.

The leaves of barberry are greately acid; the flowers are
often to the smell when near, but at a proper distance their
davour is extremely agreeable. The berries are so acid that
birds will not eat them. The barberry however is cultivated
for the sake of the leaf, which are picked and used for garnishing
dishes; being boiled with sugar, they form an agreeable rob
or jelly; they are used also as a dry sweetmeat, and in sugar-
plains or comfits. They are moderately refringent, and are
said to be of great use in bilious fluxes, and in all cases where
hiccoughs, and the pruritude of the humours prevaile. On
the authority of Prosper Alpinus (Med. Egypt. l. iv. c. 1.) we
are informed, that the Egyptians employ them in poliehing
fenders and fluxes with great success; and Simon Flavtli
relates, that he was cured of malaignant fever, accompa-
nied with a headache, by using these berries according to the
Egyptian practice; that is, macerating the fruit for a day or two night in twelve times its quantity of water, with
the addition of a little steeped bread; and then straining and
filtering the liquor, and using it as a common drinl. Dr.
Woodville observes, Med. Bot. vol. iv. p. 62. that these
berries are well calculated to alloy hest and thirst, and to
correct a prevalent tendency in the fluxes; but that in this re-
cpect they seem to posseses no peculiar advantage over moll
of the other acid fruits; hence the colleges of London and
Edinb. have resung this fruit from the Materia Medica,
and retained only that of the currant. The bark is said to
be purgeative, and Ray experienced its good effects
taken
taken as a decoction in the jaundice. The roots boiled in lye dye wood yellow. In Poland they dye leather of a most beautiful yellow with the bark of the root: and the inner bark of the stem dyes linen of a fine yellow, with the assistance of alum. Withering, "ubi supra." Kine, sheep, and goats, are said to eat this shrub, and horses and swine to refuse it.


**Propagation and Culture.** The common form is generally propagated by suckers; but as the plants thus propagated tend to lose their fruitfulness in greater abundance than those which are propagated by layers, the latter method should be preferred. The best time for laying down the branches is autumn, and the young shoots of the same year are the best; which will be well rooted by the next autumn, when they may be taken off and planted where they are to remain. When this plant is cultivated for its fruit, it should be planted single, and not in hedges; and the suckers taken away every autumn, and all the gross shoots pruned out; by this method the fruit will be fairer and more abundant. A few of these shrubs will make an agreeable variety in wild gardens or plantations of shrubs; and the fruit will be food for birds; but they should not be planted in too great quantities, or near walks that are much frequented, because their flowers emit a very strong disagreeable odour. The Canada form may be propagated in the same way as the common form, and is equally hardy. The box-leaved form, which is now very rare in England, may be propagated by laying down the branches in the same manner as the first; but the young plants should be set in pots, or sheltered under a frame in the winter; and when they have acquired strength, they may be turned out of the pots, and planted in a warm situation. Martyn's Millar's Bot.

**BERBI,** in Geography, a town of Africa, on the Ivory coast, N. E. of cape Palmas. N. lat. 4° 30'. W. long. 5° 31'.

**BERBICE,** the seat of a colony of Guiana in South America, formerly belonging to the Dutch, on a river of the same name, about 25 leagues N. W. by W. 1/2 N. distant from Surinam, which runs from N. to S. and discharges itself into the Atlantic ocean. The coast on each side of the river forms a bay at its entrance, nearly a mile broad, in the middle of which is a small island, called "Crab island." Opposite to this island, on the eastern shore, is a fort, with several pieces of artillery, and some folders; but the channel on the other side, which is navigable for ships of any burden, is undefended, and covered by the island from the guns on the opposite shore. Without the entrance of the river is a bar, which, at high tide, has seldom more than 16 feet of water; but within the water is of sufficient depth, and the river is navigable for ships of burden 200 miles from its mouth.

The plantations are situated on each side of the river, and extend nearly 500 miles from its entrance at fort Naffau, which was formerly the seat of government, and contiguous to which were the public offices and houses of the civil and military officers, about 100 miles from the mouth of the river. But the seat of government is now fixed at a point of land on the eastern shore of Berbice, about a mile from its entrance, which is formed between Berbice and the river Conya, which there discharges itself into the former. This is a narrow, but deep river, running from south to north, but discharging somewhat coarsely from Berbice. On the sides of this river are several plantations, which form a part of the colony of Berbice. The produce of these plantations consists chiefly of sugar, coffee, cotton, and cacao, and other articles, such as are furnished by Surinam. Bancroft's Nat. Hist. of Guiana, p. 350, &c. The colony of Berbice surrendered to the British arms in September 1805. The river Berbice discharges itself into the Atlantic in N. lat. 6° 50'; and W. long. 57° 20'.

**BERBUDA.** See Barbuda.

**BERBURG,** a town of the Netherlands, in the duchy of Luxemburg; 12 miles N.E. of Luxemburg.

**BERCAD,** a town of Poland, in the palatinate of Breslaw, near the Bog; 32 miles S.S.E. of Breslaw.

**BERCARIA,** Berquaria, or Berckeria, in Middle Age Writers, denotes a sheep-fold, sheep-cote, sheep-pen, or other inclosure, for the safe keeping of a flock of sheep.

The word is abbreviated from berckaria; of berckex, detorted from berexx. Hence also a shepherd was denominated berkarianus, and berquarianus.

**BERCHEM, or Berghem, Nicholas, in Biography,** an eminent painter of landscapes and cattle, was born at Haarlem in 1624, and formed for the practice of his art under some of the best masters of his time. In his manner of painting he was early and expeditions, and though he selected a very great variety and beauty of sites for his landscapes, he executed them with a surprising degree of neatness and truth. He possest a clear and strong judgment, and a facility in exprefsing his ideas; and, therefore, in the lower kind of subjects to which he directed his attention, his choice of nature was judicious, and he gave to every subject as much beauty and elegance as it would admit. The feeling of his tree is exquisitely and freely touched; his skies are clear; and his clouds float lightly, as if supported by air. The distinguishing characters of the pictures of Berchem are the breadth and just distribution of the lights; the grandeur of his masses of light and shadow; the natural cafe and simplicity in the attitudes of his figures; the just degradation of his distances; the brilliancy and harmony, as well as transparency, of his colouring; the correctness and true perspective of his design; and the elegance of his composition. He painted every part of his subject so well, as to render it difficult to determine in which he excelled most; his trees, buildings, water, rocks, hills, cattle, and figures, being all equally admirable. One of the most capital pictures of this master was painted for the principal magistrate of Dort, in whose family it is preserved; it exhibits the prospect of a mountainous country, enriched with a great variety of sheep, oxen, goats, and figures, excellently pencilled, and most beautifully coloured. Berchem was indefatigable, partly from his love of labour, and partly to gratify the avaricious disposition of his wife, who never allowed him to relax; and he painted, in the summer months, from four in the morning till day light failed; in consequence of this close application, his pictures are very numerous; and yet at this day they are rarely to be purchased, and always afford a very
very high price. Berchem died in 1681. We have several etchings by this master, that are executed in a fine, bold, masterly style; and from these John Vithier seems to have formed that admirable style in which he engraved the copies from Berchem's pictures. Pilkington and Strutt.

BERCHENI, Peter, in Biography, an historical painter, was born in France, in 1649, and placed, at the age of 15, under the care of La Fille, to that in 3 years he was qualified to be employed in the royal palaces. In 1681, he came over to England, and worked under Rambou, a French painter of architecture. Berchet painted the ceiling in the chapel of Trinity college, Oxford, the staircase at the duke of Schonberg's house in London, and the summer-house at Ranelagh. His drawings in the Academy were much approved. Towards the close of his life he only painted small historical pieces, the subjects of which were taken from fabulous history; and his last performance was a Bachmanian picture, to which he affixed his name the day before he died, in the year 1721. He occasionally amused himself with the point. Pilkington and Strutt.

BERCHING, in Geography, a small town of Germany, in the bishopric of Lichtfett, or Archdait, seated on the river Sulz.

BERCHORIUS, Bercher, Peter, in Biography, a learned divine and voluminous writer of the 14th century, was born at the village of St. Pierre du Chemin, 3 leagues from Poictiers in France, and was constituted grammatical preceptor to the novices of the Benedictine monastery at Cluny, in the year 1340. He died prior of the Benedict convent of St. Eloi at Paris, probably in an advanced age, in the year 1362, as we learn from his epitaph in that monastery. Berchorius was one of those writers who affected to interpret allegorically, not only texts of Scripture, but also poetical fables and profane histories, which they arbitrarily applied to the explication or confirmation of the mysteries of Christianity. His three grand printed works are: "Reductorium Morale super totam Biblia," in 26 books, first printed at Argentorat, 1473, fol. and containing all the incidents and stories in the Bible, reduced into allegories, "Repertorum, or Reductorium, Morale," in 14 books, which is a dictionary of things, persons, and places, all which are supposed to be mythical, and are therefore explained in their moral and practical sense; and "Dictionarium Morale," in two parts, and seeming to be principally designed as a moral repository for students in theology. These pieces were all printed at a very early period; and a folio edition of them was printed, in 3 volumes, at Venice, in 1583. Berchorius was also the author of a comment on a prophecy, called "Judgmentis Mysticum," which was used as a school-book in France. Gaius, in his "Philosophia Sacra," written about the year 1623, and of which a third edition was printed at Frankfort and Hamburg, in 1659, affixes to this author the famous work entitled "Gesta Romanorum," the writer of which has for a long time remained unknown to the most diligent inquiries into Gothic literature. The learned Mr. Thomas Warton concurs in this opinion, and thinks it amply confirmed by the general coincidence of the plan, manner, method, and execution between the "Gesta Romanorum," and the three works of Berchorius above-mentioned. He supposes it was written about the year 1340, with a view of rendering the exercises of his scholars, in the monasticlay at Cluny, in Latin, more agreeable and easy, by means of an entertaining Latin story-book, capable of being readily applied to lessons of religious. This piece operated powerfully on the general body of our old poetry, and afforded a variety of inventions, not only to Chaucer, Gower, and Lydgate, but to their distant successors. It was first printed in the Gothic letter without date, and as it is appended, before or about the year 1473, in folio; and contains 153 chapters. The second edition was printed in the same year or following year at Louvain, in 1470, and contains 151 chapters. Another edition was printed in folio, in 1530. At the commencement of typography in England, a translation of it in English was printed by Wynken de Worde, and it was afterwards frequently reprinted. This work is compiled from the obsolete Latin chronicles of the later Romans, or rather German story, heightened by romantic inventions, from legends of the saints, oriental apologues, and many of the shorter fictitious narratives, which came into Europe with the Arabian literature, and were familiar in the ages of ignorance and imagination. The classics are sometimes cited for authorities; but these are of the lower order, such as Valerius Maximus, Macrobius, Aulus Gellius, Seneca, Pliny, and Boethius. To every tale is subjoined a moralisation, reducing it into a Christian or moral lesson. Warton's Hist. Eng. Poetry, vol. iii.

BERCHTOLDSDORF, or Peterssdorf, in Geography, a town of Germany, in the archdeacony of Austria, 9 miles south-west of Vienna.

BEROHTSGADEN, or Berchtolsgaden, a province and principality of Germany, in the circle of Bavaria, environed by the archdeaconry of Salzburg, but exempt from the jurisdiction of that see. It is wholly mountainous, and contains two towns and a few villages, and sixty several lakes. At Bergoldtsgaden, as well as at Hallem, in the principality of Salzburg, salt is found in its saline flats. In order to obtain it, large cisterns, or chambers, are dug in the mines, and filled with fresh water. Some of these are so large that the water must stand in them during two years before it is sufficiently impregnated with salt; in others, this process does not require more than a few weeks. When the water is saturated, it is carried through the mount in by pipes into a retavor, whence it is conveyed to the factories. Of these there are four at Hallem, and two at Bergoltsgaden, which are not above four leagues distant from each other. The salt annually made at the former of these places, amounts to 400,000 quintals, and at the latter to 160,000. Count Zamenhoff's lipides (Hist. et Mem. de la Société des Sciences Physiques de Lauenau, vol. ii., for 1876 and 1877), that the mines at Hallem, and those at Berchtoldsgaden, are parts of the same base of salt, of which, in his opinion, is a continuation of that of Ground in Austria, about 8 leagues from Hallem; and the irregularity of the strata seems to indicate that the connexion between the two mines must have been broken by some violent convulsion.

BERCK, a town of Holland, 5 miles east of Delft. —Also, a river of Germany, which rises in the bishopric of Munster, and runs into the Ijssel at Zutphen.

BERCKSNEBROECK, a town of Holland, 6 miles north of Rotterdam.

BERD, a river of Siberia, which runs into the Ob, near Berdou.

BERDA, in Ichthyology, a species of Squalus, that inhabits the Red sea. It is of a whitish grey: lateral scales marked in the middle with a fingle transverse brown band; dorsal spines recurved. Turk. Fin Arab. The body of this fish is oval; back gibbous, with pale bands; beneath white; scales
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scales broad, rounded, entire. The crown is naked, convex, gneous; iris white; nectar large, linear, with a conic cirrus; four long, conic, subulate, olive tepals; grinders numerous, hemispherical, those behind largest; upper lip long, protostylite; gill-covers entire; lateral line near the back; fins brown, pectoral ones transparent and lanceolate; tail two-tailed. Gmelin.

BERDA, Cape, or Berinskaya, in Geography, the east point of a large bay of the Sea of Azof; cape Visharionova, or Besarionova, being the west point. Several rivers empty themselves into this bay. N. lat. 4° 42'. E. long. 56° 24'.

BERDA, a town of Asia, in Armenia, 160 miles east of Erevan.

BERDANIEH, a town of Russian Turkey, in the province of Caramania; 32 miles north of Amashch.

BERDASCHIR, See Barsir.

BERDASH, In Antiquity, was a name formerly used in England for a certain kind of neck-dress; and hence a person who made or sold such necklets. This was called a berdenier, from which it is derived our word laberdyer.

BERDICZOW, in Geography, a decayed town of Poland, in the palatinate of Volhynia, 148 miles E.S.E. of Lucke, and 324 S.W. of Warsaw.

BERDIN, or Berlin, in Genealogy, the name by which the bishop, or popes-allers, pontica of Linn., is known on the coast of Normandy. It is also called in some places berlice, or berenice.

BERDOA, in Geography, a province of Africa, in the eastern division of the great desert of Sahara, constituting one of the Oases or fertile islands, which forms a part of that extensive desert that separates Egypt from Fezzan, and contains the wandering tribe of Lebata or Lebata. It is situated to the north-east of Agadez, and has Kuar or Kawar to the south and east, to the north Angola, and the desert of Bara, and to the west Fezzan. It extends northward from N. lat. 25°, and lies between 20° and 25° E. long.; but its exact boundaries are not ascertained. Berdoa, its capital, lies north of the mountains of Tibeche; and, according to Rennell's map, is placed in N. lat. 26° 32'. E. long. 21° 35'.

BERE-ALSTON, though only a small inconsiderable hamlet, in the parish of Berc-Ferris, Devonshire, has the privilege of returning two members to the English parliament.

The right of election is vested in those persons who possess land in the borough, and pay three-pence acknowledgment to the lord of the manor, who varies the number of electors at pleasure, by granting burgage tenures to his own partizans only. The first return of members for this borough was in the 27th of Elizabeth. In the vicinity of this place are several lead mines; but none of them produce much ore, though in the time of Edward I. they were not only very rich in this metal, but yielded a great quantity of silver. It is said that 1600 weight of the latter was obtained in the course of three years.

BECYNTUS, in Entomology, a species of Papilio, with entire wings, black above, with a yellow marginal band; fix ocular spots on the under side of the posterior pair. Fabricius. This is papilio brevicauda of Cramer, is of a large size, and inhabits Sumatra.


BECINTIA REGIA, a country of Asia, towards the river Sangar. Steph. Byz.

BECYNTIUS TRACTUS, a canton of Asia Minor, in Caria. Pliny.

BECYNTUS, a mountain of Asia Minor, in Phrygia, consecrated to the mother of the gods.

BECZYNA, in Geography, a river of Lithuania, which rises in the palatinate of Vilna, and runs into the Neman, 16 miles north-east of Novogrodek.

BEREFORD, a trading place and port of the island of Iceland.

BREGRA, or BERETRA, in Ancient Geography, a town of Italy, in Picenum, at a small distance north from Ueteramna.

BEREGSZAZ, in Geography, a town of Hungary, 24 miles north of Zatmar. It gives name to a county, and derives its appellation from a Saxon colony established there; but its present inhabitants are Hungarians.

BERELTA, a town of Africa, north of Sierra Leone, at a small distance from the coast. N. lat. 8° 58'. W. long. 15° 26'.

BERELLY, or BARELLY, a city of Hindoostan; is the capital of Rohulejund, which was added to the dominions of Oude in 1772. It lies about half way between Lucknow and Delhi. N. lat. 25° 27'. E. long. 79° 45'. See Barley.

BERELOS, a lake of Egypt, between Damietta and Rosetta; about 32 miles long and ten broad in the middle, but gradually contracting towards each end. It has within it several islands.—Allo, a town of Egypt, 30 miles west of Damietta.

BEREN, an island of Asia, 40 leagues west from Congo island in the gulf of Baffin.

Beren or Berow, a town of Silecia, in the province of Ratibor; 34 miles east of Ratibor.

BERENBOURG, called also Main Island, an island in the north seas, near the coast of East or Old Greenland. N. lat. 71° 10'. W. long. 6° 10'.

BERENGARIUS, in Ecclesiastical History, a religious poet, adhering to the opinions of Berengarius, who, in the latter part of the eleventh century, a considerable time before Luther, opposed the doctrine of transubstantiation, and the real presence, strenuously maintained by Lanfranc and Anselm. See Berenger.

He is further charged by the Romanists with decrying marriage, and maintaining the common use of all sorts of women, and affecting baptism of no effect.

His followers were divided on the head of the eucharist: though they all agreed, that the bread and wine were not essentially changed, yet some allowed, that the body and blood of Christ were contained in them, though concealed under an impanation; others denied any change at all; and resolved the whole into figure; others again allowed a change in part; and others an entire change, with this restriction, that those who professed themselves unworthy it was changed back again.

Mobilin has an express disputation on the manifold condemnations of Berengarius, his retractions, relapses, and repentance.

BERENG, JAMES, in Biography, a native of Carpi, in Modena, from whence he took his name, being much more known by the name of Carpus, than by that of his family, Berengarius; one of the reformers and improvers of anatomy, was born about the end of the fifteenth century. He was initiated into the knowledge of surgery by his father, who practised that art, and had for his instructor in languages and philosophy, the celebrated Albertus Magnus. At a proper age he went to Bologna, and afterwards to Padua, where he filled for some time the office of professor of anatomy. Returning in 1418 to Bologna, he was there raised to the same office, which he continued to fill until about the year 1525. While teaching here, he is said to have diffused upwards of an hundred human bodies: a prodigious
prodigious number for the time, when the prejudice against handling or disturbing the dead was so strong. To that circumstance, aided by his known antipathy to the Spaniards, perhaps may be attributed the story of his having dissected two of the natives of that country alive, with the view of seeing the motion of the bowels, and of his being on that account obliged to fly his country. A similar story had been told of Herophilus, and was afterwards told of Vesalius. That this, however, had been done by some anatomists, or that he was accused of it, seems probable by his speaking of such a practice in his commentary on the works of Mundinus, with disgust and horror. He is with more reason said to have offended the ministers of religion by the levity and indecency of his conversation on the subject of his dissections, and by the profanity of his life; and on that account to have been obliged to quit Bononia.

By his numerous dissections, he was enabled to correct many erroneous opinions, as to the structure of the interior parts of the body, which prevailed at this time, and thence to pave the way for the further improvements made by Vesalius, his immediate successor. If he was not the inventor, as Douglas calls him, he was one of the first who used mercurial fumptions in curing the venereal disease, by which he is said to have acquired a large fortune, which he left, at his death, to the duke of Ferrara, to whose territory he retired, and where he died, about the year 1527. His works are, "Commentary, cum amplificationibus, suprap anatomen Mundini, cum textu ejus in primum liberties deducto." Bononia, 1527, 4to., containing, besides numerous corrections of Mundinus, a prodigious number of anatomical facts, which bear abundant testimony to his diligence and ingenuity. "De omnia sanare, quae recte videat (Haller says), minister fore?" and further on, "Invenio apud hunc virum, tellinonium irrefragabile pro antiquo more, quo cardienses tenes pontificis, super cetera, contra chartum." There are several rude engravings of the muscles of the abdomen, and of other parts, in this volume. "Haggrae brevis, perculitque et uberrimae in anatomia humana corporis ad suorum felibis licentiam pressos in lucem edita," Bononia, 1522, 4to., also with plates. Both these works have passed through numerous editions. In 1664, it was published in London, with the title, "A Description of the Body of Man, being a practical Anatomy." He also published, in 1516, 4to., "Veneris et Genitalium Fractura." Douglas, Bib. Anat. Hebr. Bibl. Chicago.

Berenger, Berengarius, an eminent logician and controversialist, was a native of Tournai in the eleventh century, and having studied under Albert at Chartres, he returned to Tournai, where he was made principal of the schools of St. Martin, and treasurer of the church. From Tournai he removed to Angers, and became archdeacon of the city. Distinguished by his acute and subtle genius, by his extensive learning, and by his peculiar talents for controversy, as well as by the exemplary piety of his life and manners, he was held in very high estimation. At length, however, he found reason to deviate from the doctrines of the church concerning the eucharist; and in 1049, he began to maintain publicly the doctrine of Secundus, in opposition to the opinion of Radbert; and he persisted in teaching that the bread and wine were not changed into the body and blood of Christ in the eucharist, but preserved their natural and substantial qualities, and were merely figures and external symbols of the body and blood of our Saviour. Although the church of Rome had not, in this century, adopted any settled and decided opinion concerning the nature and manner of Christ's presence in the eucharist, the doctrine of Berenger was not only opposed by several doctors in France and Germany, but attacked with peculiar vehemence and fury by the Roman pontiff Leo IX., who, in 1050, convened two councils, one at Rome, and the other at Verceil, in which it was solemnly condemned; and the book of Secundus, from which it was deduced, was committed to the flames. The council of Paris, summoned in the same year by Henry I., concurred in its condemnation, and denounced Berenger, and his numerous adherents, with all sorts of evils, both spiritual and temporal. The heretics were deprived by Henry of all his revenues, but he continued for some time afterwards firm and resolute in his adherence to the doctrine he had embraced, and enjoyed un molested tranquillity. The prevalence of his doctrine, notwithstanding the opposition with which it encountered from the writings of its antagonists, and particularly from those of Anselm and Lanfranc, archbishops of Canterbury, alarmed the church; and two councils were summoned by Victor II. at Tours, in 1054, to examine anew this dangerous doctrine. In one of these councils, Hildebrand, afterwards pope Gregory VII., appeared as the pope's legate, and took the lead in opposing this new heresy. Berenger, who was present, was at length overpowered by threats, and only abandoned his opinions, but solemnly abjured them, and made his peace with the church. This abjuration, however, was only an act of timidity and dillillation; for he soon after taught the opinions he had formerly professed, though the dread of danger rendered him more circumstint and cautious. As soon as Berenger's perjury was announced to Nicholas II., the exasperated pontiff summoned him to Rome in 1057, and in a council held there the following year, he was so terrified, that he declared his readiness to embrace and adhere to the doctrines which that venerable assembly should think proper to enjoin. Accordingly, Humbert was employed by the pope and council to draw up a confession of faith, which Berenger publicly signed, and to which, by a solemn oath, he avowed his adherence. As soon as Berenger returned to France, and found himself constemanced and protected by his ancient patrons, he expatiated his detestation of the doctrines which he had been obliged to profess at Rome, abused them boldly, both in his discourses and writings, and zealously incited his former opinion. Pope Alexander II. attempted to soothe and friendly expostulations to regain the apostate; but his remonstrances were ineffectual; the controversy was prolonged for many years, and the followers of Berenger continually increased. As soon as Hildebrand was advanced to the papal chair, he undertook to terminate the controversy; and with this view required Berenger, in 1079, to repair to Rome. Towards the conclusion of this year, a council was held in this city, and Berenger was permitted to draw up a new confession of his faith, and to renounce that which had been composed by Humbert, and approved by Nicholas II. and a Roman council. On this occasion the perjured prelate made a declaration, confirmed by an oath, that he would for the future adhere to the following proposition: viz., "that the bread laid on the altar became, after consecration, the true body of Christ, which was born of the Virgin, suffered on the cross, and was fitted at the right hand of the father; and that the wine poured upon the altar became, after consecration, the true blood which flowed from the side of Christ." This declaration satisfied the pontiff, but was thought by the council of Berenger to be too vague and equivocal. Gregory yielded to their clamours; and at a council held at Rome, in 1079, a new confession of faith was drawn up, to which Berenger, after reading and subscribing it, declared his assent by a solemn oath. This confession expressed his belief, "that the bread and wine were, by the mysterious influence of the body prayer,
prayer, and the words of our Redeemer, substantially changed into the true, proper, and vivifying body and blood of Jesus Christ; and this was followed by a solemn declaration, “that the bread and wine, after consecration, were converted into the real body and blood of Christ, not only in quality of external signs and sacramental representations, but in their essential properties, and in substantial reality.” Gregory disapproved him with the most honourable testimonies of his friendship and liberality, and he returned to his own country. But Berenger, not conceiving himself bound by this declaration, publicly retracted the sentiments which he had solemnly avowed at Rome, and even composed an elaborate refutation of the doctrine to which he had been compelled to profess his assent. Gregory, who seems not to have approved the last confession imposed upon Berenger, when appealed to, declined interfering, and took no measures for molesting him. From this time, Berenger observed a profound silence amidst the clamours of his incensed adversaries, and made no reply to their bitter and repeated insinuations.

At length, decaying with age, overpowered by the opposition with which he had ineffectually struggled, and probably deprived with the reproaches of his own mind for the philistine and diffident part he had acted, he abandoned all his worldly concerns, and retired to the isle of St. Côme, in the neighbourhood of Tours, where, in a course of penitential and pious exercises, he finished the short remainder of his life; and in 1088, he was released by death. On the minds of the people, he left behind him a deep impression of his extraordinary faculty; and an annual service is still performed for him in the church of St. Martin at Tours. His un预备 conduct was unquestionably very disgraceful to himself; and there is reason to believe that it embittered the reflections of his retirement and closing scene. It is therefore a question of little importance, whether he abandoned his original opinion before his death, as the Roman catholic writers maintain, or whether he adhered to it in the last period of his life, as the protestants, with greater probability, have affirmed. All his works, which were numerous, have been lost; except two letters, his three professions of faith, and part of his treatise against one of them. Cave's Hist. Lit. tom. ii. p. 130. Morelly's Eccl. Hist. vol. ii. p. 559, &c.

BERENICE, or BERNA, a Jewish queen, the daughter of Agrippa the elder, and sister of Agrippa the younger, king of Judea. She was born about the year of Christ 28, and at the age of 16 married her uncle Herod, king of Chaldea. After her husband's death, A. D. 48, she was suspected of having criminal intercourse with her brother Agrippa; and in order to remove suspicions, and to silence rumours of this kind, she consented to marry Pontiac, king of Puntius and part of Cilicia, on condition of his embracing Judaism. She lived with him, however, but a little while, and returned to her brother, with whom she lived on terms of intimacy, which festigated her to repose. Juvenal refers to this incestuous connection (Sat. vi. v. 155):—

“Deinde Adamas notulissimus, et Berenices
In digito factus pretiosissim; hunc dedicavit olim
Barbarus: incolae dedicat hunc Agrippa foror.”

When Agrippa heard the discourse of St. Paul before Felix at Cæsarea of Palestine, Berenice was present with him. After the commencement of the Jewish war in 67, when Agrippa was driven from Jerusalem by the irreligious people, she remained for some time after him, and interceded for the Jews with the Roman governor Florus, by whom she was treated with great disfavour. She afterwards accompanied Agrippa to the army of Vespasian in Syria; and contrived, by costly presents, to engage the good will of that avaricious emperor as long as he lived. Her beauty and ad-

drew had also captivated Titus; and on the death of Vespasian she followed him to Rome. The emperor was much attached to her, and disposed to make her his queen; but in deference to the sentiments of the Roman people, who disliked the idea of a foreign queen, and who well knew that her character was not irreplaceable, he dismissed her, and sent her away to her own country. What became of her afterwards history does not inform us. Jof. Antiq. i. xix. xx. De Bell. Jud. i. ii. Tacit. Hist. i. ii. Crevier. Gen. Dict.

BERENICE was likewise the name of several Egyptian and eastern queens. One of them, the wife of Ptolemy Euergetes, king of Egypt, under an apprehension of the danger to which he would be expos'd in his expedition to Syria, made a vow to consecrate her hair, which was her chief ornament, in case of his safe return. When the prince returned, not only in safety, but crowned with glory and success, she immediately cut off her hair, and dedicated it to the gods in the temple which Ptolemy Philadelphus had built in honour of his beloved Arsinoe, under the name of the Zephyrian Venus, on the promontory of Zephyr in Cyprus; but this hair being lost by the negligence of the priests, Ptolemy was enraged, and threatened to punish them. Upon which Conon of Samos, a flattering courtier, as well as skilful mathematician, with a view to appease the king's anger, and to conciliate his favour, affirmed, that the queen's locks had been conveyed to heaven, and pointed out seven stars near the tail of the lion, which till that time had not belonged to any constellation, declaring that they were the queen's hair. Several other astrologers confirmed the affer-
BERESOF or Berezov, a district of the province of Tobolsk in Russia, in the country of the Samoeds, situated on the river Sovol, which falls into the Obi; and bounded to the north by the districts of Wargats; on the east by the Urals mountains; on the south by the river Konda, and a large bay of the Obi; on the west by the river Tezov, and the Bay of Oby, and the other Tazovka Guba, or by the bay of Tazov. Into the former the river Obi empties itself, and into the latter the Taz; and from these two rivers the bays derive their names. This district was added to the Russian empire by the czar Gabriel, in 1532, long before the other parts of Siberia were conquered. The town of Berecsof is situated on the west side of the river Oby, 372 miles N. N. W. of Tobolsk. N. lat. 64°. E. long. 65°. 14'. This district is famous for its gold mines, in the mineral mountains of Ural, opened in 1754, and amounting annually to 5, 5, or 6, and in later years 7 or 8 pounds of gold. From the commencement of the work, in 1754, till the year 1778, during an interval of 34 years, the quantity of about 120,000 had been generally gathered, which, estimated in value, amounts to about 1,000,000 rubles, and after deducting the costs, to above 400,000 net profit. Taking the gold and silver here obtained, according to its standard in coinage, and balancing it with the expenses paid in copper money, according to its true value, a profit accruing of nearly 600,000 rubles. Took a View of Russia, vol. iv. p. 255.

BERIW is also a town of Russia, in the government of Omsk. N. lat. 64°. 15'. E. long. 59°. 34'.

BERETILSKO, a town of Poland, in the palatinate of Volynia, 24 miles S. S. W. of Lublin.

BERETHALOM, or BERTHELOOM, a spacious town of Transylvania, in the district of Westland, which is the residence of the Protestant bishop. The church is seated on a high rock, and its vicinity produces good wine.

BERETZHUSEN, a town of Germany, seated on the Labe, in the circle of Bavaria, and principality of Neuburg, 12 miles W. N. W. of Ratibon.

BEREWICH, or BEREWIC, in our Old Writers, denotes a village or hamlet belonging to some town or manor, situated at a distance from it.

The word frequently occurs in Domesday-book: in berewich, or berwich, e. g. in parochia berewich manentur.
BEREZINSKOI, a town of Siberia, on the north side of the Irtish; 40 miles of Tobolik.
BEREZNA, a town of Russia, in the district of Kargapol, on the river Omgna. N. lat. 62° 18'. E. long. 38° 7'.
BEREZNE, a town of Poland, in the palace of Wielunia, near the river Slez. N. lat. 51° 10'. E. long. 26° 57'.
BEREZNIKI, a town of Lithuania, in the palace of Troki; 10 miles of N.N.W. of Troki.
BEREZOV, See BEREZ.
BEREZOVOL, a fortress of Asiatic Russia, in the government of Orenburg, on the Uvelka, 240 miles east of Ufa, and 68 S. E. of Tchelabinsk.
BEREZOVSKOI, a fortress of Asiatic Russia, in the government of Orenburg, on the Ural, 140 miles E. N. E. of Orenburg.
BER-FISCH, in Ichthyology, a name given by the Germans to the common perch.
BERG, Matthias Vandem, in Biography, a painter of portrait and history, was born at Ypres in 1615, and, as one of the disciples of Rubens, he obtained some distinction. In his drawing he was correct, and being pious in designing after the life, and after the best models, pictures of his own invention are uncommon; although excellent copies after the finished pictures of his master are numerous. He died in 1657. Pilkington.
BERG, in Geography, a duchy of Germany, in the circle of Westphalia, called in Latin "Ducatus Montefius," berg and mahn being synonymous, and denoting mountain or hill, is bounded on the west and south by the archbishopric of Cologne, from which it is separated by the Rhine; on the north by the duchy of Cleves; and on the east by Naaf-Siggen, the duchy of Westphalia, and the county of Mark. It is about 72 miles long, and from 10 to 25 in breadth. The country, which upon the whole is mountainous, is, nevertheless, along the Rhine flat, very fertile, and produces corn in abundance; on the hills the inhabitants cultivate vines, and the higher tracts are covered with extensive forests; and the valleys afford excellent pasturage. In this duchy there are mines of lead, iron, and coal; its principal manufactures are fwords, knives, and other articles of iron and lead; and also those of cloth, ribbands, and handkerchiefs. The principal rivers are the Rhine, which flows to the east of this country, the Wipper, the Sieg, and the Ruhr. Its capital is Duffeldorf; and its other principal towns are Elberfeld, Germark, Lennep, Rattingen, and SoIingen. Hoeck computes the number of inhabitants to be 261,504. Rendier (Tour, vol. ii. p. 294.) says, that this duchy contains 9 cities, 8 market towns, 35,942 hearths, 202 churches, 44,646 Calvinists, 36,807 Lutherans, and 1,300 Jews: and he adds, that this duchy, and that of Juliers, contain a number of manufacturers, who are computed to be about 150,000. The duchy of Berg belonged to the elector palatine; but in the year 1795, it was entirely over-run by the French. See JULIERS.
BERG. See Berges.
BERG Reichenftein, or Kischperfi Hory, a royal town of Bohemia, in the circle of Prachaltiz, seated on a mountain, in which are mines of silver, 20 miles W. of Prachaltiz.
BERGA, a town of Norway, 60 miles E. N. E. of Christiania. N. lat. 59° 50'. E. long. 9° 38'.—Alfo, a small town of Spain, in Catalonia, seated on the river Llobregat.—Alfo, a town of Germany, in the circle of Neufledt, and prefecture of Weyda, seated on the Elfter, 5 miles W. of Weyda.
BERGAMASCO, or BERGAMO, a country of Italy, being part of Lombardy, and belonging to the states of Venice, is bounded on the north by the Valetlin, on the east by the Breciano, on the south by the Cremona, and on the west by the Milanese. It extends about 36 leagues from north to south, and 50 from east to west. Towards the north it is mountainous and uncultivated, but the vicinity of Bergamo, its capital, is fertile. Some of its valleys produce wine and oil; others are barren. In the mountains are mines of iron, and quarries of marble and of stones. The inhabitants are inclined to coruplency, and are subject to the gout; nevertheless, they are industrious, and intelligent in commerce, and carry on a considerable traffic in iron, wool, carpets, and tapestry, which they manufacture; cattle, marble, and mill-Stones. Their language is a very corrupt Italian. Bergamasso now belongs to the Cisalpine Republic.
BERGAMO, James Philip de, in Biography, an Augustin monk, was born at Bergamo in 1444, and wrote a "Chronicle" in Latin, from the creation of the world, to the year 1503, and "Treatise of Illustrious Women." He died at the place of his nativity in 1518. Gen. Dict.
BERGANO, anciently Bergomum, in Geography, a fortified city of Italy, and capital of Bergamasso, is seated on several hills, at the bottom of which are some handsome harbours. Between the city and the strong castle on the mountain, is a subterraneous communication. Bergamo is the seat of a bishop, and contains 12 parish churches. It contains for men, 10,000 women, and about 30,000 inhabitants. The old church, of mingled Gothic and Greco architecture, contains several valuable pictures, and deserves notice. It is a place of considerable trade, and has a large fair on St. Bartholomew's day, which is resorted to by a great number of merchants from other parts of Italy, Germany, and Switzerland. The principal articles of commerce are wool and silk; and the serge and tapestry of this place have been celebrated. Their silks equal those of Turin. The inhabitants are diligent and active, and by their industry render fertile the sandy environs of the town. Bergamo is 25 miles N. E. of Milan, and 26 N.W. of Brescia. N. lat. 45° 42'. E. long. 9° 38'.
BERGAMO, a name given by the Turks to the ancient PIRGAMUS.
BERGAMOT, in Botany, cedri or bergamot citron-tree, and the CITRUS MILIAR-ROSA of Lamarck, and a variety of the CITRUS MEDICA of Linneas. It is distinguished from the common citron-tree by its leaf, which has the odour of the rose, by its fruit, which is red, and by the pith of its flower, which is short. The fruit has a fine taste and smell; and its essential oil is in high esteem as a perfumery.
BERGAMOT, Oil, or Effluence of, is a fragrant essential oil procured from the outer rind of the bergamot orange, and prepared in a very large quantity for the table and perfumery in the south of France, and especially in Italy and Sicily. There are several other species of oranges used for this purpose, but the bergamot is esteemed the most fragrant. As the oil exists pure and ready formed in the orange peel, being simply deposed in small cells, the extraction is very easy. There are two methods of procuring it, either by distillation, as with all other essential oils, (for which, see the article Oil, Essential) or by expression. The latter is in some respects the best, as the oil is not liable to be altered by heat. Sellini relates, that in Sicily, a vast quantity of the oil is procured simply by squeezing the peel in the hand, and holding a small piece of sponge to the surface, which imbibes the oil as fast as it flows out; when the sponge is full, its contents are pressed out into a vesel in which the oil is collected. It is not easy to imagine a more indolent and inartificial method; but in Italy, and the south of France, the orange peels are first torn to pieces on a small machine, and over with nails, with the points projecting, like
BERG.

like a carding mill, whereby they are entirely torn to pieces, from which much of their oil flows out on the small mill, and is conducted away by a channel cut for the purpose, leading to a large bottle, where it is collected. After this, the peel, now in a pulpy state, is strongly compressed between two plates of glass, and the remainder of the oil is forced out. This last being mixed with the other parts of the pulp, is at first turbid, but gets clear by separation.

These expressed essential oils, or as they have sometimes been distinguished by the term "fructose", are more fragrant than the oils prepared by distillation, but being mixed with a little mucilage, they are somewhat thicker, and do not keep quite so long as the distilled. The Swedish method of preparing the essence by hand, though attended with great waste of materials, certainly affords a purer oil, than where a mill and press are used.

If the pulp, remaining after presurse, is mixed with spirit of wine and distilled, an addition of water to the distilled spirit separates an additional quantity of the oil, and leaves the liquor highly flavoured with its exquisite scent.

Bergamot, in Commerce, is also the denomination of a coarse tapery, manufactured with fleeces of filks, wool, cotton, hemp, os, cow, or goats' hair, and supposed to be invented by the people of Bergamo in Italy.

BERGANDER, in Ornithology, a name by which some have called the *fliegenkatze or nachtigall dulce*, a very beautiful species of duck, common on the Lancashire, and some other coasts of England; but not in much esteem for eating. This is anas *gardina* of Linnaeus, which see.

BERGARA, in Geography. See VERA.

BERGAISE, a town of Romania, in European Turkey, seated on the Larissa. N. lat. 41° 21'. E. long. 27° 24'.

BERGIBETHEIM, a large market-town of France, in the department of the Lower Rhine, and district of Dachtum.

BERGEN, Dirk Vandern, in Biography, was born at Haerlem, and was reckoned one of the best disciples of Adrian Vandevelde. His colouring is more glowing than that of his master; but his cattle, and other objects, are less correctly drawn. He spent some time in England; but not succeeding, returned to his own country, and for want of economy, died poor in 1689. Pilkington.

BERGEN, Charles Augustus de, son of George Bergen, professor of medicine in the university of Frankfort on the Oder, was born Aug. 11, 1714. After being initiated by his father into the knowledge of anatomy and medicine, he was sent to Leyden, where he studied under Bœchave and Albinus, and thence, to complete his education, to Paris and to Strasburg. In 1734, being thought qualified to assist his father, he recalled him to Frankfort, where he was made doctor, and the year following, professor in medicine. On the death of his father in 1738, he was promoted to the chairs of professor of anatomy and botany. With what zeal and ability he filled those offices, his numerous, learned, and ingenious dissertations on those subjects witness. In 1744, he was appointed to succeed Goëche in reader in therapeutics and pathology, which post he filled to the time of his death, October 7, 1765.

His works, consisting chiefly of academic dissertations, were collected by Haller, and published with his "Theics Anatomiae." The titles of a few of them follow. For the remainder, see Bibl. Anat. et Botan. Haller. "De nerve intercofali," 1731: "Icon nova ventriculorum Cerebrorum," 1734; "Methodus Crucii Offa differendi, et machine hunc in Bras constructae per figuram, ligno servata, delineatio," 1735; "Flora Franconia Theuton, eacmod elaborata, &c." 1752.

BERGEN, or Berygen, in Latin Berygia, in Geography, the capital of Norway, and of the province of Bergenshus, was founded in the year 1059 or 1070. It is a sea-port town, seated in the middle of a valley, and forming a kind of semicircle round a small gulf of the sea, called by the inhabitants Waag. On the land side it is defended by high mountains, constantly overhung with clouds, which descend upon the town in frequent rains, and towards the sea by several fortifications. All the churches and public edifices, as well as many of the dwelling-houses, are built of stone. The most remarkable buildings are the castle, and the cathedral school, founded in 1534. This city carries on a large trade in all kinds of fish, fish-oil, tallow, tar, hides, and timber, which are brought from the northern parts of the kingdom; and exported from hence. The returns confirm the city in corn and foreign commodities. Bergen was formerly connected with the Hans-towns, and enjoyed the privilege of coming till the year 1575. The origin of its commerce was owing to the merchants of the Hanseatic league; fifty-eight store-houses are still to be seen on the quays, which were established by those merchants for the convenience of their exportation of fish. They had also a particular court here, the decisions of which tended to exclude the native inhabitants from all share in the trade; but they were at length entirely expelled, chiefly by the vigour of a bulllet, Walkendor. This city, being chiefly conducted of wood, has been subject to frequent conflagrations, as in 1428, when eleven parishes churches were entirely consumed, and also in 1472, 1623, 1649, 1752, 1756, and 1771, on which last occasion, the flames, it is said, were visible in the isles of Shetland, or at least, the red reflection in the sky. It has now only four parishes churches, three Danish, and one German, together with some private chapels. The population is computed at 19,000. The harbour is reckoned one of the best in Europe. Bergen publishes a very laudable institution for the encouragement of the useful arts. N. lat. 60° 23'. E. long. 5° 33'.

BERGEN, Bergen, or Bergenhus, the most westerly province of Norway, situates between Aggehus and the northern ocean. It is about sixty leagues long, and seven miles wide. Its capital is Bergen. This province, or diocese, is very populous, and is remarkable for having 7 marble quarries. It includes 5 counties or districts, and the same number of provostships. The voege are 11 hardanger, Sunnhord-Lein, Nord-hord Lein, Sogn, or Sygna-Filke, Sunnhord, Nordhord, and Sunndom.

BERGEN, a county of America, in New Jersey, on Hudson river, lies opposite to New York on the east, and was first planted by the Dutch from New York. It is a mountainous country, and its extent is about 30 miles long and 25 broad; forming part of the eastern and northern extremities of the state, and at its north-western extremity meeting the north-eastern part of Suffolk county. Bergen contains 6 townships, the chief of which are Bergen and Hackensack, and 12,601 inhabitants, including 2312 slaves. Here are 7 Dutch Calvinist churches, and 2 of Dutch Lutheran.

BERGEN is the flire town of the above country, and lies surrounded by water, except on the north. It is separated by the Hudson river, from New York, at the distance of 3 miles; on the south, a narrow channel lies between it and Staten island; and on the west, it has Hackensack river. The inhabitants are chiefly descendants of the Dutch settlers.
Bergen Nerf, is the southern extremity of the above township.

Bergen, a town of Germany, in the circle of the Upper Rhine, and principality of Hanau Munzenberg. The environs produce excellent wine. — Also, a town of Germany, in the circle of Upper Saxony, and capital of the isle of Rügen; its ancient name was Ger. It is situated in the centre of the isle, where are held the tribunals of Swedish Pomernia. N. lat. 54° 28'. E. long. 13° 40'.

Bergen on the Domme, a town of Germany, in Lower Saxony, and principality of Zell, 12 miles S. W. of Dannenberg.

Bergenhuys. See Bergen, supra.

Bergen-op-Zoom, a fea-port town of Dutch Brabant, seated on an eminence, in the middle of a marsh, near the eastern shore of Zoom, at its junction with the Scheldt. It was first surrounded by a wall in 1287, by the first lord of the town, and erected into a marquise by the emperor Charles V. in 1533. The church, which is a beautiful structure, was made collegiate in 1442. The houses are well built, and the market places and squares handsome and spacious. It has a good track of land under its jurisdiction, with several villages, and some islands in the Scheldt. This place, naturally strong on account of the morasses that secure it, was regularly fortified in 1629, and defended nearly impregnable. The fortifications are reckoned the master-piece of that great engineer Cochorn. It was unsuccessfully besieged by the prince of Parma in 1588, and also by the marquis of Spinola in 1622. In 1746, the mareschal Saxe deputed count Lowendahl to lay siege to it with 30,000 men; and after persevering attacks, and a vigorous, obstinate defence, in which many lives were lost, it was surrendered to the French, who became masters of all the works of the Scheldt. At the peace of Aix-la-Chapelle, it was restored to the Dutch. It is distant 18 miles N. N. W. from Antwerp. N. lat. 51° 30'. E. long. 4° 15'.

Bergente, in Ornithology, one of the names of anat mearus. (Scap. Duk.) Bloch, boh dereler natur. 1: 2.


Eff. Char. Col. five-parted; Pet. five; Calyp. one, globose, with bellows, five-celled, five-valved; valves reflexing petals; Seeds very many.


Bergier, Nicholas, in Biography, was born at Rheims in 1557, and became professor of the university in his native city, where he was educated for the law, and became syndic. Under this character he visited Paris, and there formed an intimate friendship with Peiresc, and du Puy, by whom he was induced to execute a work which he had projected on the high roads of the empire. M. de Belle Vue took him to his house, and procured for him a pension, with the brevett of bibliographer. He died in 1623. The principal of his works are his "Histoire des grands chemins de l'Empire Romain," first printed in 1622, 400.a and reprinted, with notes, at Brussels, in 2 vols. 400. in 1729. This valuable work was translated into Latin by Heminus, and is included in the 10th volume of Graevius's Roman Antiquities. Bergier also wrote in French "A Sketch of the History and Antiquities of Rheims, with curious remarks concerning the establishment of the people, and the foundation of the towns of France," 400. 1635.

Bergimus, in Ancient Mythology, a deity peculiar to the inhabitants of Brefcia, in Italy, where he had a temple, and an order of priests. Gruter, Muratori, and Span, have recorded many inscriptions relating to this deity. It is thought that he was the god of the mountains, because berg, in Celtic, signifies a mountain.
BERGMANN, TORBERN. In Biography, professor of chemistry at Upsal, was born at Catanberg, in West Gotland, March 20th 1715; and after having finished the first course of his education, entered at the university of Upsal. His application, particularly to the study of mathematics and natural philosophy, was so intense, that his health was endangered; and as these sciences afforded a peculiar prospect of employment, a relation, who had the charge of him, discouraged his profession of them, and rendered it necessary for him to conceal the books which affid him in his favourite studies.

At the close of a year his health was so much impaired, that the resumption of it required an interval of his application, and a course of exercises, which obliged him to return to his family. His hours of relaxation were, however, occupied in the study of botany and entomology, and his discoveries in the lap of these sciences were communicated to Linnaeus. As soon as his health was re-established, he returned to the university, with a determination to pursue those studies which were most agreeable to his inclination. Besides mathematics and natural philosophy, he directed his attention to natural history, under the patronage of Linnaeus; and began with a mentor on the nature of the sublunium found in certain waters, and called coccos aquatics, which he found to be the egg of a leech, including 13 or 12 young. This was followed by other memoirs on the history of insects which attack fruit-trees, and the means of preventing their ravages; and he proposed a method of classing these insects from the form of the larva, in which state the destruction of noxious insects is most essential. About this time, the famous Swedish naturalist testified his esteem of Bergmann's character and talents, by giving his name to a new species of insects. In 1761, Bergmann was appointed professor of mathematics and natural philosophy in the university of Upsal; and both before and after this time he enriched the volumes of the Swedish act with several papers on philosophical subjects.

His paper, containing "A Review of the several explanations which Natural Philosophers have given of the Rainbow," was published in 1759; and in 1760, he published some thoughts on "the origin of those meteoric, which are not accompanied by any sensible cloud or explosion," and also "On the opinions held by Philosophers relating to the Twilight," when he prefixed an account of Mairan's "Antique Locomotion," or that of the horizon opposite to the sun.

In 1761, and in 1762, professor Bergmann wrote on the "Electricity," in consequence of a correspondence with Mr. Willow; and particularly on the electrical quality of iron and gold, and double reflecting glass. His remarks on the electric, or fly-fly, showing how to distinguish between the Carpenter's brush and those of the butterfly and moth, and describing the electric fish in the latter to be never more than 17, 28th of the time by the clock extending, that number, were published in 1753; and the fame year produced the satisfactory result of some electrical experiments, made with fide of various colours. In 1764, the professor wrote a paper to the "Academy," from a number of observations, the height in the atmosphere at which the aurora borealis appear (see Aurora Borealis); and in 1765 and 1766, he wrote again on electrical bodies; and particularly on the property and laws of electricity in the vacuum, which had been referred to his examination by the Royal Academy of Sciences at Stockholm. At this time it does not appear that the subject of chemistry employed much of Mr. Bergmann's attention; however, in 1765, on the death of Willems, he was chosen to succeed him as professor of chemistry and metallurgy. This appointment was much opposed by the party of the former professor, united with others who envied Bergmann's rising merit; and their opposition was supported by some severe criticisms on two papers, which the professor published at this time, relating to the preparation of alum, in which he recommends the use of argillaceous earth, and proposes tobacco-pipe clay, instead of alkali, to free it from the vitriol. But the prince royal of Sweden, who afterwards succeeded to the throne, and who was then chancellor of the university of Upsal, determined the dispute, and fixed him in the professor's chair. With enlarged views of the practical importance and utility of chemistry, of what had already been performed in this department of science by preceding authors, and of what yet remained to be done, Bergmann prosecuted his chemical researches, and by a combination of experimental analysis with mathematical reasoning, he extended and improved this science by a variety of valuable discoveries and observations. In order to pursue his experiments and inquiries with the greater facility, and to communicate the result with advantage to his pupils, he formed, near his laboratory, a cabinet, in which all the mineral substances were ranged in order, together with the products of those experiments which had ascertained their composition. Another collection exhibited all the minerals of Sweden, arranged according to the places where they are found. In a third, were exhibited models of the various machines and apparatus by means of which these substances were converted into useful articles, which articles were placed near the materials from which they were formed. From this philosophical arrangement Bergmann derived peculiar advantage in his profession as a teacher. While he excelled as a professor of chemistry and mineralogy, and devoted much of his time to this occupation, he was actively and incessantly employed in making discoveries which have placed him in the first rank of philosophical chemists. He examined the carbonic acid, discovered by Black, and denominated fixed air, in its several properties and habits. Nickel, manganese, the magnesian earth, and barites, which were newly-discovered substances, were particularly investigated by Bergmann, and afforded materials for regular and perpicious tinctures. The acid obtained from sugar, and many other vegetables, by the ab-\raction of the nitric acid, and those acids which are obtained from arsenic, molybdena, fluorspar, and tungsten, were discovered either by himself or some of his disciples; and to him we are indebted for leading the way in the investigation of their properties, and for ascertaining many interesting phenomena attending their combinations. From him we learn, that iron contains a number of foreign admixtures, chiefly of a metallic nature, and that the three states of crude iron, and malleable iron, and steel, principally depend upon the greater or less abundance of carbon. In his analysis of waters, he added, to the reagents before used, other substances more effectual, and whilst he evinced the imperfection of this method, he rendered it much more accurate. He also ascertained the quantities of metals, without separating them from all their combinations; and in this way he infers the quantity of metal from the weight of precipitate it affords, by the addition of an alkali, or some other known substance, from tables founded on former experiments.

He likewise analyzed the precious stones, known by the name of gems, and devised peculiar methods for separating them into the known metals in determinable proportions. Professor Bergmann covered the necessity and utility of performing scientific operations in the humid way, or by means of a flux, in which liquid solvents are used; and he also exhibited the advantages of the process by fire, applied to materials in minute portions, by means of the blow-pipe, either upon a piece of charcoal, or in a spoon of pale salt. This mode of examining mineral substances, united with that of the habits which they exhibit, with a few simple reagents, facilitated the classification of them, according to their chemical properties; a method adopted by the ingenious chemist, without
out the exclusion or disparagement of that method of investigation which regards the external character. This appears from his short eflay on the forms of crystals. The subject of elective attractions engaged the particular attention of professor Bergmann; and he engaged in the laborious undertaking of improving and extending the tables of Geoffroy, for which he perceived that, according to his views, no less than 36,000 experiments would be necessary. He therefore, under an apprehension that his life would not allow the completion of his plan, contented himself with publishing, what appeared to him to be an imperfect work, though it was otherwise regarded by the scientific world. His table of simple affinities is the first, that exhibits the laws of affinities as they are observed in the dry way; and in his scheme it is seen at once whether the operation takes place in the humid or dry way; what are the labilates presented to each other; their component parts and proportions; the numerical expressions of their attractions; what new compounds take place; and whether they fall down, or sublime, or remain in solution, and which of them are thus respectively affected. (See Afinity.) In this work, as well as in his work on mineral compounds, Bergmann, not apprised of those effects of oxygen, which have been developed in later times, considers the existence of phlogiston, or a common principle of inflammability, as an acknowledged truth. He also admits of the matter of heat as a self-existent independent principle, and seems not to have apprehended that it may be a distinct modification. Accordingly, these two principles enter into many of his explanations of facts; but in all those explanations, the matter is arranged with such order and perspicuity, that it is extremely easy to subsist the absorption of oxygen instead of the extraction of phlogiston, and the contrary effect wherever the latter imaginary principle, as it is now thought to be, is absorbed. The life of professor Bergmann, like that of other luminous and scientific men, admits of little variety. Attentive to the duties of his profession, he resided constantly at Upsal, and had the honour to be elected rector of the university, which in his time was divided into two parties, of theologians and civilians on one side, and of natural philosophers on the other, between whom Bergmann maintained peace and equality. The king of Prussia wished to engage the professor of Upsal to become a member of his academy, and to remove to Berlin; but attached to his office, though exhausted by it, and in a declining state of health, which might have been relieved by a warmer climate, and under obligations of gratitude to Gustavus, king of Sweden, who had been his benefactor, and who had honoured him with the order of Vasa, he declined the proposal, and remained at Upsal. The disciples of his school, of whom the celebrated Scheele obtained a very distinguished rank and character, reflected honour on their master, who never failed to encourage their researches, and to mention their discoveries in terms of approbation and respect. How much fir Torbern Bergmann was esteemed while he lived, in every part of Europe, it is needless to say; and of his works it is sufficient to observe, that, notwithstanding the rapid improvements which have taken place since his time in chemical science, they will long remain repositories of facts and reasoning, to which every philosopher must recur. When it is considered that he began this pursuit rather at a late period of life, and that he made his various discoveries in the course of 17 years, and that he died before he attained his 50th year, his death will be regretted as a premature event, by which society suffered a very considerable loss. He died on the 8th of July 1783, at the baths of Medel in Sweden. His works were very numerous; the principal of them are as follows: viz. * Opuscula physis et chemica, pleraque feorum antea edita jam ab autore collecta, revifa et aucta;" published in Latin in 3 vols. Svo. in 1779, 1780, 1783, and translated by Dr. Cullen of Dublin, in 2 vols. Svo. with illustrations and notes by the translator. "Meditaciones de ferramenta naturalis," printed in the 4th volume of the Transactions at Upsal for 1784, and translated into English in 1788, in Svo.; 'Physick Beskrifnung ochda Jordkloet,' or physical description of the earth, in 2 vols, in which he has given lucubrations on the structure and form of the earth; Eflay on the useful-
contains a few small places as Berheim, Oppenheim, and Weidheim. It has in it a highway, commanding prospects of wide extent. The left part of this continued chain of hills runs from Fuldeberg to Berheim, where it is about 8 leagues long and four broad. On the right hand it is cut by woods near the top, and nearer the plain with vineyards. The level road is planted with rows of walnut trees, and on either side are fields and meadows. On each of these trees of Berheim and the Olen, Wood a considerable profit to the country by the wood and the fruit; and the wood produced is an unmatchable source of supply to the inhabitants. In one year they have exported 40,000 rough made walnut tree market flock, from these parts to Saxony. From the nuts they make an excellent oil, which vears the com a people instead of butter, and the inferior fort is used for lamps. The almond trade, of which great quantities grow along the Bergraths, is very considerable. The warmth of the climate, and good-hold of the soil in the Bergraths, are rich, that after eye-reap the land may be tawn a second time with field, buckwheat, or oats, which are always ready in the markets.

BERGUES, or Burg, or Beruges St. Vino, a town of France, and principal place of a distric, in the departmen of the North; so called from St. Vino, a Flemish lord, who lived here. It is seated on the river Colne, at the union of several canals, which pass to Dunkirk. Gravelines, St. Omer, Forres, &c., and contains two parishes. Berg was the last town of West Flanders which held out for the Dutch in the 16th century. It was taken by the French in 1678, and confirmed to them by the peace of the Pyrenees in the following year. Since that time it has been fortified by new works, and the country round it may be laid under water by means of sluices; 13 league south of Dunkirk. It contains 10,052 inhabitants, and in the canton are 14,026. The territorial exint comprehends 130 kilometres, and 13 communes. N. lat. 56° 57' E. long. 2° 35'.

BERGUN, a town of Switzerland, in the country of the Grisons, near a river which flows from a lake of the same name, and discharges itself into the Albula. It lies between the Albula and the Inn, about 6 miles from the latter, and 12 miles from the former. N. lat. 46° 31'. E. long. 13° 55'.

BERGWERDEN, a town of Germany, in the circle of Upper Saxony, two miles north of Welfenthals.

BERG, a town of Hungary, 13 miles west of Steinam.

BERG-ZABERN, a town of Germany, in the circle of the Upper Rhine, and duchy of Deux Ponts, seated on the Erbach, 13 miles south of town of Deux Ponts. By the new arrangement of the French, it is the chief place of a canton in the department of the Lower Rhine, and district of Welfemburg, containing 5,917 inhabitants. The canton has 6,751 residents, is 150 kilometres, and the communes are 21. N. lat. 49° 57'. E. long. 7° 47'.

BÉRICA, Bérite, Bery, in Middle Age Writers, denotes a large open field; and the cities and towns of England, which end with that word, are built in plain and open places, and do not derive their names from borough, as Sir Henry Suckling imagines. That the word “beris,” which has been confounded with “bury,” and “brough,” as a flat wide campaign, is proved from sufficient authorities, by the learned Du Frene, who observes, that “Béris St. Edmonds,” mentioned by Matt. Paris, in ann. 1174, is not to be taken for the town, but for the adjoining plain. Besides, many flat wide meads, and other open grounds, are called by the names of “berries,” and “berry fields;” thus the spacious meadow between Oxford and Iffley was in the reign of king Athelhelm called “Bery;” and the largest paleth ground in Quarrenden in the county of Buckingham is known by the name of “Beryfield.” And though these meads have been intersected demesne, or minor meadows, yet they were in reality any flat or open meadows, that lay adjoining to any vill or farm. (Cw.) Hence also “berries affurrate,” signifies to dry or plough up heaths and downs; and hence our warreners are called “coney-berries.”

BÉRIBÉRIA, or Béreibung, in Medicine, a kind of stock in the East Indies. It is called by some British authors, who have written on the diseases of hot climates, the barbas. According to Bontius, it comes on with great warmth, trembling, numberless, and peculiar tingling sensation of the limbs, so that the patient is rendered incapable of walking, or otherwise using them. The upper as well as lower limbs are often affected. Sometimes it is accompanied with a fainting speech. Is attack is generally sudden. Those whom it afflicts are chiefly the lower chiefs of people, who imprudently get chilled after being heated, by drinking cold water; but more especially by sleeping in the night air, after great fatigue or intoxication. The remedies against this obstinate complaint are strong friction, purgative fomentations, warm-bathing, and sudorific decoctions. According to Bontius, the most efficacious topical application is a species of washes, or petroleum, from Sumatra, used as a limet. The natives of India (says Dr. Lind) have a method of putting the patient into a hole dug into the ground, and covering him with land up to his neck; this is done in the middle of the day, and he remains there as long as he can bear the heat of the land, which is considerable. Camphire, and a decoction of guaic wood, have sometimes produced a good effect; also the expressed bitter oil of the m DGerog, an Indian plant. But notwithstanding the use of the most powerful nervous medicines, the patient generally continues paralytic for some months, unless he is removed into another air.

On the Malabar coast (continues the last mentioned author) this disease is most violent and frequent, and attacks both natives and strangers, especially in the months of December, January, February, and March. During these months, the land winds blow every morning about fun-rife, from the neighbouring mountains, with remarkable coolness; and such as, being tempered by the scarcity of they, and exposed to these winds, are often suddenly seized with a very painful sensation in the periphery of the arms and legs. In persons of a good constitution, this pain abates as the day advances, and as the air becomes warmer; but in others it continues for a considerable time, attended with a weakness of the knees, and uneasy sensations in the calves of the legs and feet, especially on any attempt to walk. This is fearfully cured by medicine, till after the shifting of the maw, unless the patients can be removed to the coast of Coromandel, or to any place to the eastward of the Balagat mountains, where, by the change of air, they quickly recover. See Bontius de Med. Lhariam; and Lind on Disases incidental to Europeans in Hot Climates.

BÉRICA. See BÉRICA.

BÉRILZEN, in Geography. See BERISA.

BÉRIGAN, a town of Africa, in the kingdom of Algiers, and capital of the country of Bérim-Mezzab. N. lat. 32° 18'. L. long. 2° 55'.

BÉRINGAL, a town of Egypt, on the west branch of the Nile, 7 miles S. E. of Rosetta.

BÉRING, in Biography and Geography. See BÉRING.

BÉRINGEN, in Geography, a town of Germany, in the circle of Weizphab, and bishopric of Liege, 18 miles N.W. of Mainz.

BÉRINGOU. See BÉRING’s Island.

BÉRINSCHIUL, a rocky island in the Mediterranean, near the coast of Algiers.
BERISIA, a town of Africa, in Kaffaia, west of the town of Kaffaia, seated on the river N. el Abcoed, or Guin. N lat. 16° 45', E. long. 56° 10'.

BERRY, a simple mentioned in Scripture, used for cleansing, or taking out spots. Jerem. chap. ii. ver. 22. See also, the fuae, or El Tay, another of the people of Judah, and a town of Germany, in the circle of Upper Saxony, and principality of Weimar, on the Ilm; 6 miles S.S.W. of Weimar.—Alto, a town of Germany, in the same circle, and principality of Eisenbach, on the Werla, 9 miles W. of Eisenbach.

BERKA, or Berku. See BARRACO.

BERKASZSTI, a town of European Turkey, in the province of Moldavia, on the Berbecz, 56 miles N.W. of Galatz.

BERKELEY, Dr. George, in Biography, the learned and ingenious bishop of Cloyne in Ireland, was born March 12. 1684, at Kilriner, near Thomastown, in the county of Kilkenny; and having received his preparatory education at Kilkenny school, under Dr. Hinton, was admitted at the age of fifteen, a pensioner of Trinity college, Dublin, of which he became a fellow, June 9, 1707. In this year he published his first literary essay, written before he was 20 years of age, entitled "Arithmetica absque Algebra aut Euclide demonstrata," and evincing his talents for those sublime metaphysical studies, by which he was afterwards so eminently distinguished. In 1709 was published his "Theory of Vision," being the first attempt that was ever made to distinguish the immediate and natural objects of our senses from the conclusions which we have been accustomed from infancy to draw from them, and to trace the boundary that divides them. For this purpose he flew, that although habit hath connected the ideas of light and touch, so that they are called by the same names, they have originally no such connection, nor that when a person born blind, and suddenly made to see, would, at first, be unable to tell how any object that affected his sight would affect his touch, and from light could not derive any ideas of distance or external space, that would imagine that all the objects he saw were in his eye, or rather in his mind. In proof of this assertion, the case of a young man born blind, and coughed at the age of 14, by Mr. Chefeledan, mentioned at the close of his anatomy, has been added. This work was succeeded in the following year by the "Principles of Human Knowledge," in which Berkeley controverted Mr. Locke's account of abstract ideas and general names, and attempted to prove that the commonly received notion of the existence of matter is false, and inconsistent with itself; that those things which are called sensible material objects are not external, but exist in the mind, and are merely impressions made upon our minds by the immediate act of God, according to certain rules. terms laws of nature, from which, in the ordinary course of his government, he never deviates; and that the steady adherence of the Supreme Spirit to these rules is what constitutes the reality of things to his creatures, and so effectually distinguishes the ideas perceived by sense from such as are the work of the mind itself, or of dreams, that there is no more danger of confounding them together on this hypothesis than on the common supposition of matter. See Abstraction, Body, Existence, and Matter.

In the year 1712, Berkeley's attention was directed, by the perusal of Locke's "Two Treatises of Government," to the doctrine of passive obedience; in support of which he printed the substance of three common-places or sermons, delivered in the college chapel. In consequence of this publication, he was represented as a Jacobite, and prevented from obtaining some prebend in the church of Ireland; to which he had been recommended; but the unfavourable impression that had been thus made on the mind of the prince of Wales, afterwards George II., was removed by Mr. Mollyneux, who took occasion of introducing Berkeley to queen Caro of his "System of Materialism," in "Three Dialogues between Hylas and Philonous." Such was the reputation which he had now acquired by his writings, for acentics of parts, and a beautiful imagination, that his company was sought even by those who did not embrace his opinions, and he was introduced to the acquaintance of persons of rank and learning, by two gentlemen of opposite principles, Sir Richard Steele, and Dr. Swift. For the form, he wrote several papers in the "Guardian," and at his house formed an intimacy with Mr. Pope, which lasted during his whole life. Dean Swift also introduced him to lord Berkeley of Stratton, and to other valuable acquaintance; and procured for him the appointment of chaplain and secretary to the earl of Peterborough, who being appointed ambassador to the king of Sicily, and to the other Italian states, took Berkeley with him, in November 1713. On his return to England, in 1714, he found that his hopes of preternatural had expired with the fall of queen Anne's ministry; and he therefore accepted the offer of accompanying the son of Dr. Alhe, bishop of Clogher, in a tour through Europe. At Paris he visited the illustrious father Malebranche, whom he found in his cell, cooking, in a small pîquin, a medicine for an inflammation of the lungs, with which he was afflicted; and as they engaged in a conversation on Berkeley's System, Malebranche, in the heat of discussion, raised his voice so high, and indulged the natural impetuosity of his temper to such a degree, that he brought on an increase of his disorder, which caused him to leave the house a few days after; viz. October 13, 1715. During four years' absence from England, Mr. Berkeley not only prostituted, what is usually called by travelers the grand tour, but he visited Apulia, Calabria, and Sicily. The materials he collected, with a view to the natural history of the latter country, were unfortunately lost in his passage to Naples; and this circumstance is the more to be regretted, as he has given to the world satisfactory specimens of his talent for lively description, in his letters to Mr. Pope and Dr. Arbuthnot. At Lyons, in his way home, he drew up a curious tract, "De Motu," which he sent to the royal academy of sciences at Paris, and which he committed to the press soon after his arrival in London, in 1721. The dastardly South Sea scheme of 1720, engaged his attention at this time, and he wrote "an Effay towards preventing the ruin of Great Britain," which was printed at London, in 1721. By his travels, his natural politeness, and his talents for conversation were so much improved, that he found easy access to the best company; and he was introduced by Mr. Pope to lord Burlington, who conceived for him a very high esteem on account of his distinguished taste and skill in architecture, which had been the object of his particular study in Italy. By this nobleman he was recommended to the duke of Grafton, lord-lieutenant of Ireland, and accompanied him thither in 1721. Having been elected senior fellow of his college in 1717, he now took the degrees of bachelor and doctor in divinity. By the death of Mrs. Vanhomrigh, the celebrated "Vanella," to whom he was introduced by Dean Swift, in 1715, and who altered her purpose of making the dean her heir, in consequence of discovering his connection with "Stella," Dr. Berkeley became possessed of half her property, amounting to about 400l. and in the discharge of his office, as one of her executors, committed
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committed to the flames several letters that had paled in correspondence between her and the dean, not, as he declares, because there was any thing criminal in them, but because he observed a warmth in the lady’s style, which delicacy required him to conceal from the public.

On the 18th of May 1724, Dr. Berkeley resigned his fellowship, and was promoted by his patron to the deanship of Derry, worth £100. per annum. Having for some time conceived the benevolent project of converting the savage Americans to Christianity, by means of a college to be erected in the Summer islands, otherwise called the isles of Bermuda, he published a proposal for this purpose at London, in 1723, and offered to resign his own opulent preference, and to dedicate the remainder of his life to the instruction of youth in America, on the moderate subsistence of £100. a year. Such was the influence of his distinguished example, that three junior fellows of Trinity college, Dublin, concurred with him in his design, and proposed to exchange, for a settlement in the Atlantic ocean, at £50. per annum, all their flattering prospects in their own country. The proposal was enforced on the attention of the ministry, not merely by considerations of national honour and a regard to the cause of Christianity, but by the immediate advantage likely to accrue from it to the government. Having, by diligent research, ascertained the value of the lands in the island of St. Christopher’s, ceded to Great Britain by France at the treaty of Utrecht, he proposed to dispose of them for the public use, and thus to raise a sum of money, part of which was to be applied to the establishment of his college. The scheme was communicated by the intervention of the abbé Guistieri, or Atteri, to king George I. and by the royal command introduced into the house of commons by sir Robert Walpole. A charter was granted by his majesty for erecting a college, by the name of St. Paul’s college in Bermuda, which was to consist of a president and nine fellows, who were obliged to maintain and educate Indian children at the rate of £1 per annum for each. The first president, Dr. George Berkeley, and the first three fellows named in the charter, those junior fellows of Dublin college above-mentioned, were licensed to hold their preferments in these kingdoms till the expiration of one year and a half after their arrival at Bermuda. The common, in 1726, voted an addit to its majesty, praying a grant of such a sum to effect the above purposes out of the lands of St. Christopher’s already mentioned, as his majesty might think proper. The sum of £500 was furnished by the ministry, and several private subscriptions were immediately raised for promoting the proposed undertaking.

The dean having, in 1725, married the eldest daughter of the right honorable John Fuljier, esq. speaker of the Irish house of commons, prepared to set sail for Rhode island, in the execution of his scheme, and took with him a pretty large sum of money of his own property, as a collection of books for the use of his intended library. Upon his arrival at Newport in Rhode island, he contracted for the purchase of lands on the adjoining continent, and fully expected that the purchase money would, according to his grant, be immediately paid. His expectations, however, were disappointed; and after various excuses he was at length satisfied by bishop Goldston at that time bishop of London, in whose diocese the whole west Indies is included, that an appeal to his grace to Sir Robert Walpole, he received the following answer:—

‘If you put this question to my lord, as I think it a matter too important to be left to me, it may be paid as soon as this war shall be over. But if you ask me again whether Dr. Berkeley shall receive income in America, expecting the profit of £1000, I must write by a man of business in Europe, and to give up his present expectations.’ According ly, the dean, after having expended a great part of his private fortune, and more than seven years of his life in the prosecution of a laudable scheme, returned to Europe. Before he left Rhode island, he distributed the books he had brought with him among the clergy of that province, and upon his arrival in London, immediately returned all the private subscriptions that had been advanced for the support of his undertaking. In 1732, he published the ‘Minute Philosopher,’ a work consisting of a series of dialogues, on the model of Plato, in which he pursues the free-thinker through the various characters of atheist, libertine, enthusiast, forzer, critic, metaphysician, fatalist, and feticist, and employs several new arguments from his own system. Of the company, which at this time attended the philosophical conversations that were carried on in the presence of queen Caroline, according to a practice which had commenced when she was princesse of Wales, some of the principal persons were doctors Clarke, Houdly, Berkeley, and Sherlock. The debates that occurred were chiefly conducted by Clarke and Berkeley; and Houdly adhered to the former, as Sherlock did to the latter. Houdly affected to consider the philosophy of Berkeley, and his Bermuda project, as the reviver of a visionary. Sherlock, on the other hand, epithetized his cause; and on the publication of the ‘Minute Philosopher,’ preferred a copy of it to the queen, and left it to her majesty to determine, whether such a work could have been the production of a disordered understanding. The queen honoured Berkeley with admitting him to frequent visits, and took pleasure in his conversation on subjects relating to America; and upon a vacancy in the rich deanship of Down in Ireland, procured it for him. But as lord Burlington had neglected to give proper notice of the royal intention to the duke of Dorset, then lord-lieutenant of Ireland, and to obtain his concurrence, the duke was offended, and the appointment was not urged any farther. Upon this, her majesty declared, that since they would not suffer Dr. Berkeley to be a ‘dean,’ in Ireland, he should be a ‘bishop,’ and accordingly, upon a vacancy in the see of Clony, in 1733, he was promoted by letters patent to that bishopric. In consequence of this appointment, he reigned continually at Clony, and devoted his time and attention to the faithful discharge of all episcopal duties. He resided in his diocese the useful office of rural deacon, visited often parochially, and confirmed in several parts of his see. In the prosecution of his duties, however, his diligence was unabated; and about this time he engaged in a controversy with the mathematicians of Great Britain and Ireland on the subject of Fluxions. He was led to it by the following occurrences: Mr. Addison having visited Dr. Gath in his study, adduced some difficulty on the necessary of preparing for his approaching disputation; but the doctor replied, ‘Surely, Addison, I have good reason not to believe those things, since my friend Dr. Hale, who has dealt much in demonstration, has reduced me that the doctrines of Christianity are incomprehensible, and the religion itself an impossibility.’ This disputation being reported by Addison to the bishop, took up arms against this reducible dealer in demonstration, and addressed to him ‘the Analyt’; with a view of showing that mysteries in faith were unjustly objected to by mathematicians, who admitted much greater mysteries, and even falsehoods in science, of which he endeavoured to prove that the doctrine of fluxes was furnished an eminent example. See Fluxions. In 1741 came the controversy on this subject, the bishop, in 1743, published a reply to his bishop, suggested to be by Dr. John, called ‘A Defence of Free-thinking in Mathematics.’ In this controversy, he directed his thoughts to objects of more apparent utility; and printed in 1745, by “Quaker,” for the good of Ireland. In 1746, his “Defence of Free-thinking in Mathematics.”
ecurie addressed to Magistrates;" and in 1750, his "Maxims concerning Patriotism;" all of which evince his knowledge of mankind, and his zeal for the service of true religion, and of his country. In 1745, during the Scots' rebellion, he addressed a "Letter to the Roman Catholics," of his diocese, and in 1749, another to the clergy of that persuasion in Ireland, under the title of "A Word to the Wife," which was so well received by them, that they returned him their public thanks, with expressions of marked esteem and respect, which deserve him as "the good man, the polite gentleman, and the true patriot." That he discovered this character in a very eminent degree, was very generally acknowledged, and particularly by lord Chesterfield, who, as soon as he was advanced to the government of Ireland, in 1745, offered him the see of Clogher, then vacant, and the value of which was double that of Cloyne. This offer the bishop, moderate in his views, disinterested in his support of government, and particularly attached to his customary place of residence at Cloyne, and to the connections and duties attending it, respectfully declined. Towards the close of his life, he laboured under a nervous colic, the effect of his sedentary course of living, in which he found considerable relief from the use of tar-water; and he therefore communicated his thoughts on this celebrated medicine to the public, in a treatise entitled "Siris, A Chain of Philosophical Reflections and Enquiries concerning the Virtues of Tar-water," printed a second time in 1747, and followed in 1752, by "Farther Thoughts on Tar-water," which was his last performance.

In 1752, he removed, with his lady and family, to Oxford, for the purpose of superintending the education of one of his sons, who was admitted a student at Christ Church college, in that university: but sensible in a high degree of the impurity of non-residence, he endeavoured first to procure an exchange of his high prebend for some canony or headship at Oxford; and failing of success, he afterwards, by a letter to the secretary of state, requested permission to reign his bishopric, worth at that time not less than 1,400l. per annum. When the petition for this purpose was presented to his majesty, he declared he should die a bishop in spite of himself, and gave him full liberty to reside wherever he pleased. Before he left Cloyne, he signed a lease of the demesne lands in that neighbourhood, renewable yearly at the rate of 200l. and directed this sum to be annually distributed, until his return, among poor housekeepers of Cloyne, Youghall, and Aughadda. At Oxford he was highly respected by the members of the university; but his residence among them was of no long duration. On Sunday evening, January 14, 1753, whilst he was surrounded by his family, and his lady was reading to him one of Dr. Sherlock's sermons, and also the leffon in the burial service, taken from 1 Cor. xv. whilst he was commenting upon it, he was suddenly seized with a disorder, called the palsy of the heart, and instantly expired. His remains were interred at Christ Church Oxford, and a marble monument was erected to his memory by his widow, with a Latin inscription, drawn up by Dr. Markham, head master of Westminster school, and now archbishop of York. In this inscription he is said to have been born in 1684, and his age to be 73; whereas his brother, who furnished the particulars of his life, states the year of his birth to have been 1684, and of course he died at the age of 69.

The person of bishop Berkeley was handsome, his converse easy and benign, and his constitution robust, till it was impaired by his sedentary life. At Cloyne he constantly rose between three and four in the morning; and often spent the greater part of the day in study; his favourite author, from whom many of his notions were borrowed, was Plato. The enthusiasm of his private character, which was singularly excellent and amiable, entered into his literary one; and it was manifested in his public works, as well as in his life and conversation. Few persons were ever held, by those who knew his worth, in higher estimation than bishop Berkeley. When bishop Atterbury was introduced to him, he lifted up his hands in astonishment, and exclaimed, "So much understanding, so much knowledge, so much innocence, and such humility, I did not think had been the portion of any but angels, till I saw this gentleman." This testimony serves to remove the air of hyperbole from the well-known line of his friend Mr. Pope:—

"To Berkeley every virtue under heaven."

In matters of speculation, his natural armour might, possibly, have led him to imbibe some notions that are more fanciful than just. It has been said, that towards the close of his life, he began to doubt the solidity of metaphysical speculations, and that he therefore turned his thoughts to the more beneficial studies of politics and medicine. He has been charged by some considerable persons, and particularly by bishop Hoadly, with corrupting the native simplicity of religion, by blending with it the futility and obscurity of metaphysics; and Mr. Hume affirms, that his writings form the bell lemons of scepticism which are to be found either among the ancient or modern philosophers, Bayle not excepted; that "all his arguments," against Sceptics, as well as against Atheists and Free thinkers, says Hume, "though otherwise intended, are, in reality, merely sceptical, appear from his, that they admit of no answer, and produce no conviction." That his knowledge extended to the minutest objects, and included the arts and beauties of common life, is testified by Dr. Blackwell, in his "Court of Augustus." The infidelity of his research, and the acuteness of his observations, comprehend not only the mechanic arts, but the various departments of trade, agriculture, and navigation; and that he possessed poetical talents in a considerable degree, is evident from the animated letters that are found in the collection of Pope's Works, and also from several compositions in verse, particularly the beautiful stanzas written on the prop. & of realizing his noble scheme relating to Bermuda. The classical romance, entitled "The Adventures of Sigrior Cavendio di Lucca," has generally but not truly been attributed to him.

Besides the writings already mentioned, bishop Berkeley published at Dublin, in 1735, a small pamphlet relating to the doctrine of Fuxions. entitled "Reasons for not replying to Mr. Walton's full Answer," &c. His smaller pieces were collected and printed under his inscription at Dublin in 1752, under the title of "Miscellanies." The works of George Berkeley, D. D. late bishop of Cloyne; to which is added an account of his life, and several letters, &c." were published in 2 vols. 4to, in 1784. Biog. Scot.
degree of doctor in that faculty. The theses he wrote on this occasion is intitled, "Differtatio medica inauguralis de podagra," and is dedicated to his Grosser de Bielfeld. On his return to England, he settled at Tilehouse, near the Thames; and soon after published his "Pharmacopoea medica," which has been so much approved, as to pass through several editions. But he seems to have been of too active a disposition to remain long in the practice of medicine, in which he never made much progress. In 1778, he was appointed by government one of the commissioners who were sent to America with a view of setting the differences between that country and England, and was the only one of them that was permitted to go to Philadelphia, where the congress was sitting. Here he remained some time, but left Paris at length by the congress, and perhaps without realising, or carrying on a secret correspondence with some of the Americans, who disapproved of their proceedings, he was first sent to prison, but was soon released, and then sent to his brother commissioners at New York. On his return to England, he received a pension from government for the services he was engaged in to render his country; on which, and his own fortune, he lived as a private gentleman to the time of his death, which happened on the 3rd of April 1791.

Dr. Berkenthout was author of various works, besides those mentioned above. In 1770, he published "Outlines of the Natural History of Great Britain and Ireland," a useful manual for students in that line. In 1778, "First lines of the theory and practice of philosophical chemistry," which he dedicated to Mr. Eden (Lord Auckland), who had been one of the commissioners with him to America. He also wrote "An Essay on the bite of a mad dog; "An Answer to Dr. Cadogan's Essay on the Gout; "A Prize to the translation of Pomme's treatise on the disease of the spleen. He was also the author of "Lucubrations of wars and means," from which the idea of several of our present taxes is said to be taken; and of "A Translation of Count Tellin's letters to the late king of Sweden." New Bng. Dict.

BERKLEY'S CREEK, Ariam, in Geography, a land which floods off from the land towards the sea, to the south of Berkley, or the south end, on the coast of Holland. It is situated on the south of the Land Deep channel into the Tweak, the coast trending nearly N. and S. from the Mass to the Tweak.

BERKHAMSTED, a market town of Hertfordshire, England, is situated in a fertile country, on the southern bank of the small river Bulbarne, at the distance of 26 miles N. W. of London. This town and its vicinity have been the seat of war, and noted by historians as the property and residence of some of the Sixties kings, and other distinguished characters of that nation. After the Norman conquest, it was possessed by some princes of the blood, and Duke of Cornwall. On the north side of the town are the embankments, and other remains, of a considerable castle, which Camden supposes was built by Robert Bruce, earl of Cornwall, who was brother to the conqueror, and enjoyed the manor, &c. from him. At this place the conqueror had an interview with the English nobility, after his successful battle against Harold. The castle raised by earl Morten, was demolished in his later time, who was accused of rebellion, and the town and manor forfeited to the crown. Henry II. granted the inhabitants many privileges, among which was the liberty of felling their goods free of tolls and duties, either in the country of the commonalty, Aquitania, or Anjou. In Donne Yew-hack, there were fifty-two burgesses named in this town, whose merchandise was chiefly wool, which was manufactured into cloth on the continent. Henry II. kept his court here, as appears from a grant dated at that place, conferring the church of Havering in Essex on the monks of St. Bernar de Monte Lovis, to provide for the poor. King John, in the 7th year of his reign, granted this castle and honour to Geoffrey Fitzneer earl of Essex, but two years after his death, these places were again in the king's hands. The dauphin of France, in concert with the barons, besieged this fortress, which was bravely defended. The besiegers made two unsuccessful sallies, and held out until the king sent them orders to surrender. Previously to the second year of Henry III., the markets were held here on a Sunday, but in that year they were changed for Monday, which is still the market day. This castle and lordship continued for a long period in the possession of the earls and dukes of Cornwall, and were repeatedly the scene of rendezvous and baronial conundam. The castle was surrounded by a fos and vallum, including about four acres of ground, and the keep, or caistel, was placed on the north side; upon the dilapidation of its walls, a large house was constructed with the materials, which was poisselled in the rebellion by colonel Axtel. The town is much reduced from its former confluence, and consists of one long street, having St. Leonard's hospital at one end, and St. James's at the other. The church, dedicated to St. Peter, is a large honefime pile of building, and has several small chapels, or oratories, included within its walls, and some curious old monuments. Here is an almshouse for six poor widows, who are jointly allowed 301. a year towards their maintenance. The town has also a charity-school and a free grammar school; the latter of which was endowed by king Edward VI. for 144 boys, and provided with a master and usher. Besides these charitable foundations, here is another almshouse, which was endowed by John Laver and his wife, with a legacy of 12001. Berkhamstead, and gives the title of marquis to the duke of Cumberland. The chief trade of the place consists in the turning of bowls, of shovels, spoons, and other articles, made of hickory wood. Here are three annual fairs, and a latite fair for the hiring of servants, &c. The houses in the parish are 328, and the inhabitants amount to 1972. This town is called Berkhamsted St. Peter's, in contradistinction to another parish, a little to the north of it, which was formerly separated from this, and called Northchurch, or Berkhamsted St. Mary's. Salmon's History of Hertfordshire.

BERKLY, a town of Atlantic turkey, in the province of Nova Scotia, near the river Canter; 35 miles E. of Smyrna. N. lat. 38° 21'. E. long. 25° 47'.

BERKLEY, a county of Virginia in North America, lies well of the Blue ridge, north of Frederick county, and separates from the state of Maryland, on the north and east by Poyntopick river. This fertile county, about 40 miles long and 20 broad, has 16.751 free inhabitants, and 2932 slaves. Its chief town is Martinsburg.

BERKLY, the name of a county and town in Charleston district, South Carolina, lying near Ashley and Cooper rivers. In the census of 1791, it was called St. John's parish, in Berkeley county, and contained 75 free persons and 517 slaves.

BERKLY, a township of Bristol county in Massachusetts, Contain 57 inhabitants; 5 miles S. of Boston.

BERKLY, or BERKLY, an ancient town of Gloucester, England, and distinguished in the history of this country for its mild and woolly cattle, and the popular arts that have occurred within its walls. The town is barely mentioned in the page of history, whilst the cattle is repeatedly mentioned, and referred to in the Norman conquest to the dilutious warfare in the seventeenth century. In some old records this
this place is called Berchelai, and is distinguished by the appellation of borough, though it does not appear ever to have tenent members to parliament. Formerly the great public road from Brilifl to Gloucester, and from the western to the northern counties, passed through the town, and consequently gave it some advantages; but this road is now conducted through Newport, and some other places, to the eail of the town. This circumstance, with the powerful attractions of Gloucester and Bristol, have conpired to reduce the size and consequence of this place, which at present consists of one street only. The river Avon skirts the southern side of the town, and is navigable to the Severn for vessels of 40 or 50 tons. These must wait for high tide, which flows round the castle gardens, and extends a short distance above them. This part of the county is distinguished by its fine fertile land, the rich cheese made in its dairies, and the golden and London-pippin cyder, obtained from its orchards. The cheese mostly made here is distinguished by the double name of Gloucester, the best of which is bought up by the London factors, at high prices. (See Cheese.) The town is one of the five ancient boroughs of this county, which subsisted in the time of Edward I. and though deprived of most of its ancient privileges, yet a mayor is annually elected.

The manor of Berkley is one of the largest in England, and was taxed in the Domesday book at 160 hides, and 294 plough-tillages and a half. It was possessed, immediately after the Norman conquest, by Roger de Berkeley, who came into England with the conqueror, and was rewarded by him with this manor. It has continued in this noble family without interruption to the present time, and is now enjoyed by Frederick Augustus, the fifth earl of Berkeley, who is the twenty-ariit in descent from Harding the Dane.

The castle of Berkeley is one of the most perfect of the English baronial edifices, and has suffered less from the scourge of war and injudicious alteration, than any other English castle belonging to a subject. Some parts of the original structure are full perfect, and are interesting examples of the first Norman architecture, which was employed in constructing the baronial castles. The site of this building occupies an area of ground whose outline is nearly circular. It rises from a valley on the south and east, and its other sides are guarded by embattled walls, towers, and fortified gates. The great entrance gate opens into a bailey court, having the keep on the left, and the domestic apartments on the right, and in front. The keep, whose walls are lofty and massive, resembles the form of a Roman D, and is flanked by three semicircular towers, besides that in which the great flone fairs are contained. This is square, and has a small dark room near the top, where Edward II. was secretly murdered by the machinations of the bishop of Hereford, who invented and directed the execrable deed.

The elegant and energetic poet, Gray, notices this event in the following expressive terms:

"Mark the year, and mark the night,
When Severn shall re-echo with affright,
The shrieks of death through Berkley's roof to ring,
Shrieks of an agonizing king."

The hall, chapel, and most of the apartments, are fitted up and preferred nearly in their ancient style, and in some of them are several curious relics of antiquity. Among them are many fine old historical portraits, and the ophsa, chairs, and bedstead, which belonged to the cabin of the circumnavigator sir Francis Drake. The hall, which is 34 feet by 33, was built in the reign of Edward III. and has a fine old raftered roof, with a gallery at one end for the accommodation of mindrels, in "days of yore." Leland mentions several parks and chases, as connected with this castle at the time he visited it; but all, except two, have been converted to the more useful purpose of farming. One of these, called Whitley park, which is inclosed with a wall seven miles in circumference, still remains, and contains much fine forest timber.

At Parton near this castle, the present earl of Berkeley has made a lily pool, which is the only one in this county, and where a great number of wild ducks are annually netted. The celebrated Dr. Jenner, the great promotor of the vaccine inoculation, was born in this parish.

To the north of the castle is the parish church, which is a large handsome structure, and contains several handsome and ancient monuments of the Berkeley family. The tower is a modern building, and constructed at a small distance from the church.

In this township are 99 houses, and 698 inhabitants. In the hundred of Berkeley there appear to be, by the late population act, 34.50 inhabited houses, 9,148 males, 10,074 females, 3968 persons employed chiefly in agriculture, 61, 51 employed in trade, manufactures, and handicraft, and the whole number of persons amounts to 19,272. Rudge's History of Glossester. Rudder's History of ditto.

Berkley's Point, lies on the north side of oldt Eglum's island, or New Giderley, the principal of the groupe called Queen Charlotte's islands, in S. lat. 10° 40'. E. long. about 100° 10'.

Berkley Sound, so called from captain Berkeley, who visited it in 1787; an inlet, or bay, on the N. W. coast of North America, being the entrance into the supposed island of Juan de Fuca, terminated on the fourth by cape Flattery, and on the north by the southern part of Quadra, or Vancouver's island; about 10° 51' south-east of Nootka found. N. lat. 48° 30'. E. long. 24° 5' 37''.

BERKS, a county of Pennsylvania in North America, has Northampton county on the N. E. Northumberland on the N. W. part of Luzern on the N. Dauphinv and Lancaster on the S. W. and Chelten and Montgomery on the S. E. It is watered by Shelaykill river, and is 53 miles long, and near 29 broad, and contains 1,234,450 acres. Iron and coal, which are plentiful, supply several iron works.

The northern parts are rough and hilly. Berks contains 30,179 inhabitants, of whom 65 are slaves. It has 29 townships of which Reading is the chief.

BERKSHIRE, a county of the state of Massachusetts, is bounded on the N. by the state of Vermont, on the S. by that of Connecticut; on the E. by Hampshire county, and on the W. by the state of New York. It runs through the whole extent of the state from N. to S. and contains 26 townships; and the number of inhabitants is 20,291. White and coloured marble is found in several towns, in the rough and hilly parts of this county.

Berkshire, a newly settled township of Franklin county in the state of Vermont.
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Berkshire, its native, Egbert, gave the whole country the name of Engla d Alfred, grandson to Egbert, and a native of Wantage in this county, proceeding on the plan of his grandfather, more firmly cemented the kingdoms which Egbert had united, divided the whole into hundreds, tithings, parishes, &c. and gave this division the name of Berkshire, which was afterwards contracted and fixed to Berkshire.

This county is bounded by the shires of Oxford and Buckingham on the north, having the river Thames running the whole course; on the south by Surrey, on the south by Hampshire, and on the west by Wilshire. In the estimation of the like authors are at variance, but the most accurate statement gives its length from E. to N.W. at 45 miles, and its breadth, in the widest part, at 25 miles; though a narrow part near the centre is little more than 6 miles across. It contains about 550,000 acres of land, and is locally divided into twenty hundreds, containing 12 market towns, 130 parishes, 62 vicarages, about 670 villages and hamlets, 21,195 houses, and 109,515 inhabitants. A range of chalk hills enters this county from Oxfordshire, crosses it in a westerly direction, and forms the southern boundary of the vale of White Horse. Independent of this range of hills, the county is characterized by gentle eminences and valleys, having much rich fertile land, and abounding with picturesque and beautiful scenery. Though almost every kind of grain is cultivated in the county, yet that of barley is raised in greater quantities than either of the other species, and when made into malt, is chiefly sent to London. Many large dairy farms are found in the White Horse vale. Berkshire is well stocked with timber, particularly oak and beech in the western part, and also with numerous deciduous and evergreen trees in Windsor forest and park, and in the various ornamental plantations scattered through the county. The open commons and uncultivated fields of Berkshire are supposed to constitute nearly half the county. Of these, Windsor-forest, Maidenhead-fficket, Tylbury-beath, Wickham-beath, and the numerous commons and marishes, that are found in almost every parish, contain above 40,000 acres. The county derives but little advantage from manufactures, there being only a few clothiers established in the western part of it, and some paper-masters, &c. at Reading.

On the banks of the river Kennet, in the vicinity of Newbury, are some large beds of peat, which furnishes the poor with fuel, and the farmer with ashes to meliorate his land.

The principal rivers of Berkshire are the Thames, the Kennet, the Lambourn, the Ock, and the Loddon. The first, though it leaves to urgate and fertilize a great part of this county, does not strictly belong to it, being the natural boundary line between this and the counties of Oxford and Buckingham. It enters Berkshire almost one mile south of Lalelade, and in its progress eastward, waters the inland valleys of Abingdon, Wallingford, Henley, Maidenhead, Windor, &c. and having received the tributary waters of various streams, leaves the county near Rannymead.

The Kennet enters the county on its western side at Hungerford, and passes through a narrow baggy valley to Newbury. Flowing eastward, in nearly a direct line, it runs through the county town of Reading, and thence afterwards unite with the Thames.

The Lambourn, a tributary stream to the former river, rises near a town of its own name, and after a course of about 11 miles,' falls into the Kennet at Newbury. This river has been described as a phenomenon, by many topographical writers, some of whom have asserted that its current is more powerful and copious in summer than in winter. To account for this singular occurrence, they would have found, that the river has no remarkable characteristic different from others, whose course is through a short tract of flat country.

The Ock rises in the vale of White Horse, near Kingdon Luffe, and flowing eastward, receives several other streams before it reaches the town of Abingdon, near which it unites with the Thames.

The Loddon enters the southern side of the county near Swallowfield, and running directly north, forms the western boundary to Windsor forest, and falls into the Thames near Wargrave.

Berkshire is in the diocese of Salisbury, and included in the Oxford circuit. It sends nine members to parliament; two of whom are returned for the county, and two for each of the towns of Reading, Wallingford, and New Windsor. The other member is elected for the borough of Abingdon. The Lent assizes, and the Epiphany county fesions, are constantly held at Reading; the Easter sessions at Newbury; the Summer assizes at Abingdon; and the Michaelmas sessions alternately at the latter town, and at Reading.

Among the objects of antiquity in this county, is the celebrated White Horse; which the most learned antiquaries refer to Saxon origin; and Mr. White, who has published two small pamphlets on the subject, endeavours to prove that it was defigured by Alfred, to commemorate a victory obtained by the Saxons over the Danes. It was formed on the side of a chalk-hill, by the simple process of cutting off all the green turf within a certain line, which resembled the shape of a horse. This trophy is now nearly obliterated by the grass growing on its surface. Near the White Horse is a very large encampment, called Uffington-castle, and about one mile westward of the latter is a Druidical monument, named Wayland-Smith. It is a large cromlech on a barrow, with several smaller stones, which were formerly placed in a circle round it. Another Druidical relic is to be found at Park-place in this county. This was brought from the site of Jerfey, and all its stones were placed here in the exact position, and relative situation in which they were originally found. See Henley.

Besides several ancient encampments of different sizes and shapes, this county had two Roman itations, which are named in Antoninus's Itinerary "Spinus," and "Calleva," and are found in the thirteenth Iter of that work. In the seventeenth Iter is another iteration, named Pontibus, or Pontis, which antiquaries agree in fixing near the eastern border of the county. The Roman Walling-street passed across the northern corner of Berkshire, entering it near Wallingford, and leaving it on the north-western side. Reading is the county town of Berkshire, and the castle of Windsor its greatest ornament. Camden's Britannia. Coates's History of Reading. Horley's Britannia Romana. Beautiful of England and Wales

BERKOUSSA, a town of Croatia, on the river Kupia, 11 miles south of Petricha.

BELIAI, a town of Croatia, on the river Kulpa, 6 miles south of Shum.

BERLAMONT, a town of France, in the department of the North, and chief place of a canton, 12 leagues E.E. of le Quesnay. It contains 1755 inhabitants, and a church; the canton amount to 5759. The territory includes 35 kilometres, and 14 communes.

BELASREUT, a town of Germany, in the circle of Bavaria, 5 leagues E. of Palatia.

BERLEBURG, a town of Germany, in the circle of the Upper Rhine, 26 miles E. of Cologne.

BERLEUX, a town of France, in the department of the Somme, and chief place of a canton, in the district of Pernem, 3 miles S.W. of Pernem.

BERLIN, a city of Germany, in the circle of Upper Saxony,
BERLIN.

Saxony, a capital of the electorate of Brandenburg, and of the whole Prussian dominions, is situated on the banks of the river Spree, and has been reckoned one of the most beautiful cities in Europe, as it is one of the largest and most populous in Germany. Its extent is about 44 miles in length, from the Mohlsterr to the south-east, to the Oranienburgerthor on the north-west; and about 3 miles broad from the Berenberthor, on the north-east, to the Potsdamerthor on the south-west; but within this extensive enclosure there are many gardens and corn fields. The streets are disposed with great regularity, and are of a convenient breadth. In the new town they are perfectly straight. Frederick street is reckoned 24 English miles in length; and others, which intersect this at right angles, are a mile or a mile and a half long. Some have asserted that it covers as much ground as Paris; but though this be not true, and it be allowed to occupy more than half the extent of the capital of France, its number of inhabitants is much smaller in proportion. The number of houses has been variously estimated. Reiffbeck computes them at 6000; count Hertzberg states the number of buildings, public and private, as amounting, in 1790, to 6725; and according to Horeck, the number of houses is 6930. The number of inhabitants, according to the latest statement, is 143,000; Horeck computes them at 143,099; and Hertzberg at 150,803, being, at an average, more than 22 inhabitants to each house.

There are a few very magnificent buildings in this town; and the rest are neat houses, built according to a plan prescribed by the late and present king, who have directed their particular attention to the external decorations of the city, either of a fine white freestone, or of bricks covered with a thin coating of plaster, painted with a light colour, and generally one, or at most two stories high. The situation of the city, in a barren sandy plain, exposes it very much to dust, which, in dry windy weather, is not only inconvenient to the eyes and lungs of the inhabitants, and injurious to their health, but detrimental to the beauty of the buildings, which exhibit a foiled and shabby appearance. The heating of the houses within by no means corresponds with their external elegance; the rooms are in a ruinous condition, the furniture covered with dust and dirt, and the variety of persons of the meanest condition, who inhabit them, altogether inconsistent to their outward magnificence and decoration. In these handsome houses, soldiers are quartered even on the ground floor, in rooms looking out to the street; and the lowest mechanics occupy the different stories. The principal edifices are the king's royal palace, and that of the prince-royal. The former is a magnificent structure of freestone, begun by Frederick I. in 1608; but as it has been constructed at different periods, and by several architects, its fronts are not exactly regular. It consists of four stories, with large apartments, fine ceilings, and superb furniture. The noble chambers are decorated with capital paintings and rich tapestry, and furnished with tables, stands, inlaid, cantheliers, looking-glass frames, fercens, couches, &c. of solid silver. The library, though a mean apartment, is well furnished with books; among which is a collection of 500 Bibles in different languages and editions, particularly the Bible used by our Charles I. when he was beheaded, presented as a kind of relic by Dr. Juxon to the elector of Brandenburg, and also the first Bible printed in America, and one of 1450, the first printed in the German language; and also a koran, in a character so small, and on a paper so thin, as to form only 1½ inch in bulk. The arsenal is a noble structure, forming a spacious quadrangle, and containing arms, ranged in excellent order, for 200,000 men. Over the principal gate is a portrait of the elector, William the Great, in a large model of gilt brafs; and the four cardinal virtues, of a gigantic size, are placed on pedestals on each side of the portico, and seem to look towards the picture. Theolders of the garrison amount to about 30,000. The royal stables are very magnificent, adjoining to which are grand apartments for the master of the horse, and his inferior officers; and in the rooms over the stables, may be seen the rich accoutrements of the horse on which Frederick I. rode, when he made his public entry; all the ornaments of the bridles, the bridle-leather and crupper, as well as the bits and bitrings, being of gold, adorned with brilliants. The opera-houfe is a beautiful structure, and on the front bears this inscription, "Fredericus rex, Apollini et Minerva." The king allows the free admission to the public; and, accordingly, in Berlin are 25 churches, 14 of which are Lutheran, 10 Calvinist, and one Roman Catholic, which is the most elegant in the city. The churches are decorated with Mercuries, Apollos, Minervas, and Cupids, "which might lead a stranger to suspect," says Dr. Moore, "that the Christian religion was exploded from the Prussian dominions, and old Jupiter and his family restored to their ancient honours." Instead of fants and crucifixes, says the same writer, Frederick III. proposed to adorn the church of Berlin with the portraits of men who have been useful to the state; those of the marshals Schwerin, Keith, Winterfield, and some others, were actually placed in the great Lutheran church before his death. We may also reckon among the public buildings and establishments of Berlin, the academy of sciences, (See Academy), another of arts and painting, an anatomical college, 5 gymnasia, 2 public libraries, and many excellent and important fabrics and manufactures of silk, woolen stuffs, and flockings, cotton, linen, lace, porcelain, &c. which supply it with a very considerable and advantageous trade, to the prosperity of which, the unlimited toleration granted to Roman Catholics, Lutherans, Calvinists, and Jews, has very much contributed. In Berlin, there are several large squares, in one of which is an equinoctial statue of marshall Schwerin, holding the ensign with which he advanced at the famous battle of Prague, and which he seized from one of his officers when his troops were giving way, exclaiming, "Let all, but cowards, follow me." On the new bridge over the Spree, stands also an equinoctial statue of William the Great, which is highly esteemed as a piece of fine workmanship: the man and horse in one piece, cast at the same time, and the statue weighs 3,000 quintals. The suburbs are adorned with the magnificent garden of Count Reußen, the beautiful house and garden called Mombijon, the house and garden of Belvidere, and the lately hospital of invalids, for the maintenance of about a thousand officers and soldiers. In the new Calvinist church of Old Coln, is the burying place of the royal family. At Berlin there are many public walks and gardens. The principal walk is that in the park, on the south side of the Spree, which is upwards of three miles in circuit, and reforted to by the inhabitants of the city in great crowds on a Sunday; and here they are provided with every kind of refreshment, and indulged with any fort of amusement. The most fashionable walk in the city, is that which lies in the middle of one of the streets. Before the houses at Berlin, on each side, is a caufe-way, and between these two caufe-ways, are fine gravel walks planted with lime-trees. Under these are pitched tents, in which are sold ice, lemonade, and other refreshments. In the summer, the bands of music belonging to the regiments practife in this walk. In all the private houses a very rigid economy is observed; the chief article of expense is that which pertains to the drets of the ladies, who deny themselves common indulgences, for the sake of powder and millinery. The ladies...
adies of the court have much of the air of French women. There are some kinds of irregularities that prevail to a

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frequent silly and flippant, and friendly or not friendly in a German character. Jealousy is held in equal contempt and detestation by the inhabitants of Berlin, and scandal is very little known. The environs of this city are remarkably pleasant, being interspersed with villages, vineyards, canals, pleasure houses, and gardens. Among the palaces in the neighborhood belonging to the royal family, Schonhausen and Charlottenburg are the most worthy of notice. The former is situated about two miles from Berlin, on the Pankow, which supplies the pond in the summer garden of this palace with water. Charlottenburg also, one of the royal or electoral palaces, seated on the river Spree, was only a small village, till the electors, comfort to Frederick 1. being pleased with its situation, began to build in it, and after her death the works were carried on by the elector, who gave it its name in commemoration of his wife Sophia Charlotte. This palace is one of the most delightful structures in Germany, and is adorned with a most beautiful garden.

Berlin is divided into five wards, called Berlin proper, Coln on the Spree, Frederick's Werder, Dorotheenstadt, and Fredericksbad. The proper Berlin was founded in the 12th century, by some colonists invited thither from the Netherlands, and the vicinity of the Rhine, under the margrave Albert, the Bear. The suburbs of this town are frequently called Königsflad, and by others divided into three vicinities, or quarters. Berlin proper is separated by a principal arm of the Spree from Coln, over which are four bridges, three of timber, and one of stone, called the Pontoncol. Coln was probably built about the same time as Berlin; and it is formed into a kind of isle by two branches of the Spree, which environs it. New Coln is now a considerable part of the old town of Coln, from which it is separated by the Spree. The suburbs of Coln were included in 25 ø6, within the outer wall. The Fredericksbad was built by the elector Frederick William, on a swampy werder, or island. This ward is separated by a rampart and ditch from the Dorotheenstadt, or Neustadt, founded by the elector Frederick William, and named after his consort, Dorothy. This new town is the most beautiful part of Berlin, and it is chiefly inhabited by the French. In a street of this town is the walk above mentioned. Fredericksbad, founded by the elector Frederick III. immediately on his ascension to the government, communicates with the new town and the Werder, and is the pleasantest ward in the whole city; the streets being spacious, straight, and planted with lime-trees. Behind this is erected a new ward, which ranges to the end of the new town, where many of the nobility have built palaces. In the suburbs, the houses are generally of timber, but in well plastered, that they seem to be of stone, and the streets are broad and straight. From this town there is a free communication, by means of canals, between the Spree and the Oder, and the Spree and the Elbe. Berlin lies in N. lat. 52° 32' 30". L. long. 13° 26' 15". The annual average of temperature of Berlin for fifteen years, from 1769, to 1784, was, according to Mr. Beugeln's observations, 43°, nor could he find that the temperature decreases. The Baltic, within 120 miles N. of it, tempests the north winds, says Kirwan (see his Estimate of the temperature of different latitudes, p. 71) and to this is owing the moderate temperature which it enjoys. The influence of the vicinity of the Baltic must be allowed, when it is considered that the temperature of Berlin is higher than that of Dresden, Altenburgh, or Gotha, whose latitude is one degree lower, but more distant from the Baltic. Reisbeck's Travels, vol. iii. Moore's Travels through France, &c. vol. ii.

Berlin, a neat and flourishing town of America, in York county, and state of Pennsylvania, containing about 100 houses. It is regularly laid out, on the S. W. side of Conewago Creek, 13 miles westerly of York town, and 100

E. of Alleghany county, Vermont, on Dog river, a branch of Oniim river from the south, which falls separates Berlin from Montpelier on the N. N. W. Berlin contains 134 inhabitants, and is about 94 miles north-easterly from Bennington. Also, a township in Hartford county, Connecticut, 12 miles S. W. from Hartford, 42 N. W. from New London, and 26 N. S. from "New Haven. Also, a township in Worcester county, Massachusetts, containing 512 inhabitants, 34 miles W. from Bolton, and 15 N. E. from Worcester. Hops have been cultivated here, and promise to be a valuable article of husbandry.

Also, a township of Somerset county, formerly in that of Bedford, Pennsylvania, which lies on a branch of Stone creek, a fourth water of Conemaugh river on the west side of the Alleghany mountains; 25 miles W. from Bedford; 23 N. W. from Fort Cumberland, in Virginia, and 200 W. from Philadelphia. Stone creek, the chief source of Kiskimiatrics river, rises N. N. E. of Berlin. N. lat. 36° 54'.

Berlin, a fort of vehicle, of the chariot kind; taking its name from the city of Berlin, in Germany: though some attribute the invention of it to the Italians, and derive the word from Berdnia, the name given them by the Romans, wherein persons are exposed to public shame. It seems to have having derived its origin, as well as its name, from Berlin, it is alleged, that Philip de Chicieu, a native of Piedmont, and defended from the Italian family of Chiefa, was a colonel and quarter-master in the service of Frederick William, elector of Brandenburgh and that he was much esteemed by the elector on account of his skill in architecture. Being once sent to France on his master's business, he caused to be constructed, for the convenience of this journey, a carriage capable of containing two persons; which in France, and every where else, was much approved and called a berline. This Philip de Chicieu died at Berlin in 1673. Beckman's Hist. of Inventions, vol. i. p. 135.

The Berlin is a very convenient machine to travel in, being lighter, and less apt to be overturned, than a chariot. The body of it is hung higher fore and aft, by kettledrums; there being a kind of rim around or sheathing, for the convenience of getting into it; instead of side windows, they have shrouds to let down in bad weather, and draw up in good weather.

Berlin, in Natural History. See BEER.

BERLIN, in Geography, a town of Germany, in the curve of Upper Saxony, and New Mark of Brandenburg, 60 miles E. N. E. from Berlin, and 36 N. N. E. from Kurlan.

BERLINECZ, a town of Poland, in the patrimony of Buczaw 72 miles W. from Breslau.

BERLOCH, a town of Bohemia, in the circle of Czaslaw, 9 miles N. E. from Czaslan.

BERME, in垣Nish an, a small space of ground, four or five feet wide, left without the rampart, between its foot

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and the side of the moat, to receive the earth that rolls down from the rampart, and prevent its falling into, and filling up, the moat.

This is also called sfero, relinh, retraite, pas de secrs, foreland, &c.

Sometimes for greater security, the berme is palisaded.

BERMEJO, in Geography, the name of an island and port on the S.W. coast of South America, in about 2 degrees N. lat. a little W. from Lima. It is a four leagues distant from Menguon on the north, and 6 from Guarmey on the south. The island is a small white island, in the middle of which is a bay: the land from hence to Menguon is high, and abounds with hillocks, having large spots of white sand. It has a good harbour and fine fresh water at a small distance from the shore; and the harbour is known at sea by a large high hill with a cleft in it, which runs down southward to the sea-side; on the north it is very steep.

BERMEO, or VIBRIMEO, a sea-port town of Spain, in the province of Biscaia, near cape Machichaca, 5 leagues N.W. of Bilbao.

BERMUDA HUNDRED, or CITY POINT, is a port of entry and port town of America, in Chesterfield county, Virginia, seated on the point of the peninsula formed by the confluence of the Appamattox with James river, 56 miles west from Williamsburg, 64 from Point Comfort, in Chesapeake bay, and 515 S.W. by S. from Philadelphia. City Point, from which it is named, lies on the southern bank of James river, 4 miles S.S.W. from this town. The town has about 40 houses, including some warehouses. It trades chiefly with the West Indies, and the different states. City Point, in James river, lies in N. lat. 37° 16', W. long. 77° 51' 30'.

BERMUDAS, or SOMER'S ISLANDS, vulgarly called Summer Islands, a cluster of small and rocky islands, forming the figure of a shepherd's crook, and amounting in number to about 400, situated in the Atlantic, and distant from the coast of Carolina about 200 leagues. N. lat. 35° 35', W. long. 63° 58'.

They derived their first name from John Bermudas, a Spaniard, who discovered them in 1527; and their second appellation they owe to Sir George Somers, who was shipwrecked on these rocks in his passage to Virginia in 1609, and lived there nine months. But he and his companions, having built a ship of cedar wood, sailed hence to Virginia. Sir George Somers, it is said, was driven a second time on these islands, and died there. But his companions returning to England, made so favourable a report of their beauty and fertility, that the Virginia company, who, as the first discoverers, claimed the property, sold them to about 120 persons, to whom King James I. granted a charter. Accordingly, in 1612, they planted the largest of them, viz. St. George's isle, with 160 persons, and in 1619, sent thither 500 persons more: upon which they instituted an assembly, with a governor and council. It is said, that they are much incommoded by want of fresh water, and by the storms, thunder, &c. to which they are subject. Shakespeare has therefore justly described them as ever " vexed with storms; but the poet Walter, who resided there for some time, on being condemned for a plot against the parliament in 1643, reprehends them as enjoying a perpetual spring. In 1725, the benevolent bishop Berkeley proposed to erect a college in these islands for the conversion of the savage Americans. See Berkeley.

This group of islands is said to contain about 400: but the greater number seem to be mere rocks and islands, not of sufficient importance to have received a name. From the chart by Lem Pereire, 1797, it should seem that the largest island, called "Bermuda," resembles a book, the great foot on one of the north. The length is about 35 geographical miles, and the breadth between one and two. The other islands which have received names are St. George's, St. David's, and Sommert. The island of St. George's lies eastward of the main land, and has a capital town of the same name, containing about 500 houses. Contiguous to this is St. David's, which supplies the town with provisions. The air is healthy, and a continual spring prevails; so that most of the productions of the West Indies might probably be cultivated in these islands. The houses are built of a soft stone, which is found on timber, and seemingly resembling that of Bath; and the stone is much used in the West Indies for retarding water.

With regard to the supposed fertility and productivity of these islands, it appears, from the answers of governor Brown to the inquiries of the privy council of England, that they contain from 12 to 13 thousand acres of very poor land, of which 9 parts in 10 are either uncultivated, or reserved in woods for a supply of timber towards building small ships, sloops, and shallop{s} for sale, this being the principal occupation of the inhabitants; and the vessels which they furnish, being built ofcedar, are light, buoyant, and unexpensive. Of the land in cultivation, 40 part was appropriated to any other purpose than that of raising Indian corn, and excellent roots and vegetables, of which a considerable supply is sent to the West Indies, until the year 1755, when the growth of cotton was attempted, but without much success; there being at present more than 500 acres applied to this species of culture. The number of white people of all ages in Bermudas is 5492, and of black, 4919. The Bermudians are generally lessening men, and the negroes are expert mariners. In the war between Great Britain and America, there were at one time between 15 and 20 privateers fitted out from hence, which were manned by negro slavers, who behaved irreproachably, and such is the state of slavery in these islands, and so much are the negroes attached to their masters, that such as were captured always returned when it was in their power. Some part of the trade of the Bermudians consists in carrying the salt which they fetch from Turks isle and America, where they fell it for provisions or for cash. These islands are frequented by whale-fishers. The government is conducted by a governor named by the British crown, a council, and a general assembly; the religion is that of the church of England. There are 9 churches under the care of 3 clergymen; and one Peculiar church. The women of these islands are said to be handsome, and both sexes are fond of drest. Edward's Hill of West. Ind. vol. i. p. 470.

BERMUDAS Cedar, in Botany. See JUNIPERUS. BERMUDIANA. See SISYRINCHIUM.

BERN, in Geography, was, before the French revolution, one of the thirteen cantons of Swifferland, bounded on the east by the cantons of Uri, Unterwalden, Lucern, and the county of Baden; on the north by the Aulryan forest-towns and the cantons of Basle and Soleure; on the west by the canton of Soleure, the county of Bienne, and a part of France; and on the south by the lake of Geneva, the Valais, and the duchy of Savoy. In the year 1352, Bern acceded to the Helvetic confederacy; and polled rich power, even at that early period, as to obtain the second rank among the Swiss cantons. Since the acquisition of the Pays de Vaud, the domains of this canton formed nearly the third part of Switzerland, and about the fourth of the actual population. It contained 3840 square miles; its population was estimated at 374,600 persons, and its contingents amounted to 2000. At the introduction of the reformation in 1528, government acquired a large increase of revenue by secularising the ecclesiastical
eclesiastical privileges. At the same period the whole canton followed the example of the capital; and the reformed religion was permanently established. This canton was divided into two great portions, the Pays de Vaud, and the German district. The Pays de Vaud having been conquered from the house of Savoy, and the German district from the States of the Empire, justice was administered, and taxes regulated in each by peculiar laws and customs. Each of these divisions had its treasurer and chamber of appeal resident in the capital; the chamber of appeal belonging to the Pays de Vaud judged in the laft resort; but the inhabitants of the German district were allowed to appeal to the foreign council.

The sovereign power of this canton rested in the great council of two hundred, which, when complete, consisted of 299 members chosen from the citizens, from whom they were considered as deriving their power, and as acting by deputation. The authority with which they were invested, was in some respects the most uncontrolled of any among the aristocratical states of Switzerland. The great council of Bern, since the year 1682, when it was declared the foreigne, was restrained by no constitutional check, like some of the others. As a general assembly of the citizens was never convened on any occasion, the executive powers of government were delegated by this sovereign council to the senate, chosen by themselves from their own body; the former ordinarily assembled three times a week, and extraordinarily upon particular occasions; the senate, every day, Sundays and festivals excepted. The senate, comprising the two avoys, or chiefs of the republic, was composed of 27 members; and from this select body were taken the principal magistrates. On a vacancy in the senate, 26 balls, 3 of which were golden, were put into a box, and drawn by several members; and those who drew the three golden balls, nominated three electors out of their body. In the same manner, seven members were chosen from the great council, who also nominated seven electors out of their own body. These ten electors fixed on a certain number of candidates, not exceeding ten, nor less than five; and such among these candidates as had the fewest votes in the foreign council, retired till their number was reduced to four; then four balls, two golden and two silver, were drawn by the four remaining candidates; the two who drew the former were put in nomination, and he who had the greatest number of ballots in the foreign council was chosen. The candidate, in order to be eligible, must have been a member of the great council ten years, and must be either a married man or a widower. The greatest excellence of this mode of election consisted, as Mr. Planta observes, in making the choice of laws apply chiefly to the electors, and not to those who might pretend to the succession, by which the dangerous effects of calumny were in a great measure abated, and yet a fair prospect of success was given to the meritorious, while those wholly unqualified could entertain little hopes of being preferred. The elected candidates drew lots only in one state of the proceedings; and when their number being reduced to only four, an even chance was given to those few to whom eminent qualifications had insured the marked approbation of their fellow-citizens; and when fortune proved unfavorable in one instance, repeated opportunities would occur, in which, unless the proved singularly unpromising, the elected object would be ultimately obtained.

The great council was generally elected every ten years; as within that period there was usually a deficiency of 50 members to complete the whole number of 299. When this deficiency occurred, and not before, new election was proposed; nor could it be deferred when there was a deficiency of 100. The time of election being determined by vote, each avoyer nominated two of the new members; each seigneur, and each member of the senate, one; and two or three other officers of state enjoyed the same privilege. Some few persons claimed, by virtue of their office, a right of being elected, which was generally allowed. These several nominations and pretensions generally amounted, on the whole, to about 50; and the remaining vacancies were supplied by the suffrages of the senate, and the seigneurs. These seigneurs were sixteen members of the great council, drawn yearly from the abbeys or tribes; and the candidates were generally taken from those who had exercised the office of bailiff, and were elected by lot. They were invested with an authority similar to that of the Roman centors; and in cases of maladministration, might remove any member from the great council or senate, though they have seldom exercised this power. The principal magistrates were two avoys, two treasurers, and four bailiffs; each chosen by a majority of voices in the foreign council, and yearly confirmed in their respective offices. The avoys held their posts for life; the treasurers, six years; and the bailiffs, four. The two treasurers, one for the Pays de Vaud, and the other for the German district, formed, in conjunction with the four bailiffs, an economical chamber of council of finance, which passed the accounts of the bailiffs, and received the revenues from those who were accountable to the government. The four bailiffs, the ex-avoyer who was the first senator in rank, and president of the secret council, the senior treasurer, and two members of the senate, composed a committee or secret council, in which all state affairs, requiring secrecy, were discussed.

Although the form of this constitution was aristocratical, and the senate possessed a very considerable influence, yet it did not enjoy (says Mr. Coke) that almost exclusive authority which exists in many aristocratical governments. For, by several wise and well-ordered regulations, the foreign council, although it delegated the most important concerns of government to the senate, yet assembled at stated times, and superintended the administration of public affairs. Mr. Burke asserts, that the republic of Berne was one of the happiest, most prosperous, and best governed countries on earth.

The canton of Berne, by its old constitution, was divided into a certain number of districts, called bailiwicks (see Bailwicks), over which bailiffs were chosen from the foreign council. These were the most profitable polls in the disposal of government, and very eagerly pursued. They were formerly nominated by the bailiffs, but the mode of election was altered in 1712, and they were chosen by lot. The bailiffs were representatives of the sovereign power in their respective districts; whose business it was to enforce the edicts of government, to collect the public revenues, to act as judges of the peace, and to be judges in civil and criminal causes, except where there was any local jurisdiction. In civil cases, beyond a certain value, an appeal lay to the courts of Berne; in criminal affairs, the process underwent a revision in the Senate, and was referred to the criminal chamber, which inflicted punishments for small misdemeanours; but in capital cases, the sentence was to be confirmed by the Senate, and by the foreign council, if the deliquent was a citizen of Berne. The bailiff delivered his accounts to the economical chamber, to which court an appeal lay in case of exaction on his part, or on the part of his officers. The profits of the bailiff's office arose from the produce of the demesnes, of the tithes, certain duties paid to government in the respective bailiwicks, and from the sums imposed
for criminal offences. In some parts of the German division, the bailiff became entitled, upon the death of every paean, to a determinate part of the inheritance, which proved in some situations an oppressive tax upon the family. The bailiff, being governor and judge in his own district, and having a magnificent chateau for his accommodation, not only possessed great power, but in the course of his administration, which lasted six years, was able to live with proper magnificence, and, to lay up two or three thousand pounds without extortition or unbecoming parsimony.

In Bern, the militia was so well regulated, that government was able to assemble a very considerable body of men at a moment's warning. To this purpose every male at the age of 16 was enrolled, and about a third of the whole number was formed into particular regiments, composed of fullers and electoraries; the former being bachelors, and the latter married men. Every person thus enrolled was obliged to provide, at his own expense, an uniform, a musquet, and a certain quantity of powder and ball; and no paean was allowed to marry, unless he produced his uniform and arms. Every year a certain number of officers, called land-majors, were deputies by the council of war, to inspect the arms, to complete the regiments, and to exercise the militia. The regiments were, besides this annual review, occasionally exercised by veteran soldiers appointed for that purpose. Beside the arms in the arsenal of Bern, a certain quantity was also provided in the arsenal of each bailliage, sufficient for the militia of that district, and likewise a sum of money amounting to three months' pay, which is appropriated to the electoraries in case of actual service. The draughts were chosen from the substantial farmers, each of whom provided his horse and accoutrements. In time of peace the avery out of office was president of the council of war; but during war, a general in chief was nominated for the forces of the republic. A certain number of regiments being thus always ready, signals are fixed on the highest part of each bailliage, for assembling the militia at a particular place in each district, where they receive orders for marching. As the page of history does not exhibit a greater curiosity than what was called the "exterior flate" at Bern, we shall here subjoin a brief account of it. It was a model of the sovereign council, and composed of those burghers who had not attained the age requisite for entering into that council. It had a great council, a senate, two avoyers, treasurers, bannerets, and feicenners; all of whom were chosen in the usual manner, and with the accustomed ceremonies. The poll of avoyer in this mimetic legislative community was solicited with great affidavit, and sometimes obtained at a considerable expense, as the feucal-fain candidate was always admitted into the great council without any farther recommendation. This body possessed 66 bailliages, consisting of several ruined castles dispersed throughout the country, among which Harzburg was the principal. It had also its common treasurers, and its debts, differing in this latter respect from the actual government of Bern, which was not only free from debts, but possessed of a very considerable fund in reserve. Great honours were paid to this singular institution, as it was in fact a kind of political fenility for the province of the canton, who were likely to arrive in some future period at the highest offices in the state. Its badge, or coat of arms, which was an ape sitting on a lobster, and viewing itself in a mirror, was no bad emblem of its mock consequence.

The revenues of Bern, out of which were paid the salaries of the principal magistrates, which were extremely moderate, the reigning avoyer being allowed 400., each of the senator's 150., and the banneret 230., and which were applied to the expenses of the government, were derived principally from the public demesnes appropriated at the time of the reformation; the tithes, sequestered at the same period, and assigned to the maintenance of the clergy, public farnilies, and charitable institutions; quit-rents, and monopoly of salt and gun-powder; produce of the post-office; customs and tolls; duty on wine imported into the capital; and fines imposed for misdemeanours; also a tax on the alienation of landed property in the French district; the interest of money accumulated from a regular provision of savings, of which nearly 500,000. were lodged in the English funds. The whole revenue has been flated by the bail authorities as not exceeding 300,000. crowns, which were always more than sufficient to cover the expenditures, and to construct and support the magnificent public works. A large treasure was always reserved in a vault of the capital lor sudden emergencies, and the care of this vault entrusted to the principal magistrates, each of whom had a separate key, and without their concurrence, and a special order from the sovereignty council, the door could not be opened. The amount of this treasure could not be accurately ascertained, but it must have been very considerable, as not less than 160,000. bullion was deposited in the mountains of Hasli and Oberland. The pillage of this treasure was one of the principal objects of the French directory, to deprecate the expenses of their armament against Egypt. In the plunder of Bern, it is said that the French did not acquire less than 400,000. in specie.

When the directory of France determined to revolutionize Switzerland, it directed its whole force against the canton of Bern, on the conquest or submission of which the reduction of the country at large depended. Its hollibilities were preceded, in 1797, by requiring Bern, and the other Helvetic cantons, to dismiss the British minister, who withdrew, and voluntarily announced the termination of his embassy in a dignified note addressed to the rulers of Bern. France, having accomplished the first part of its plan, which was that of dividing the confederate states, proceeded to the attainment of their second object, which was the subjection of Bern. With this view they secured the passes which facilitated the invasion of the Bernefe territory, by feizing the Eurgel and the town of Bienne. The subsequent attempt to detach the Pays de Vaud from Bern, and to erect it into a republic, under the auspices of France, was equally successful, from the pusillanimity and infatuation of the Bernefe government. Bern, after some feeble and ineffectual remonstrances, relinquished its claims on the Pays de Vaud, and made overtures of conciliation to the French directory, and to Mengaud, their agent, in Switzerland. But these degrading measures served only to alienate the rest of the republic. At length, after some fruitless negotiations, they had recourse to arms; and the forces of Soleure and Fribourgh ranged themselves under the land ard of Bern; and the chief command was entrusted to general Erbisch, a member of the sovereign council, who was a veteran distinguished for military skill and undaunted courage. The combined forces of Bern, Soleure, and Fribourgh, amounted at this time to 25,000 men, and extended from the northern frontiers of the canton of Soleure beyond Fribourgh; occupied the strong position of Vally, between the lakes of Morat and Neufchatel, and pulshed their advanced corps as far as the valies of Ormond, towards the fourth-eastern extremity of the lake of Geneva. By this position they covered the towns of Soleure, Bern, and Fribourgh, and prevented all communication between the two French armies, in the Pays de Vaud, and the bishopric of Baile. Erbisch, having arranged his plan of offensive operations in a masterly manner, was confident of success, and his troops were eager for the combat. In this
transmitted the plan of a new constitution; according to which, Switzerland, including the Grisons, was divided into 17 cantons. Accordingly, this constitution of 1801, Bern, in its former extent, except the Pays de Vaud and Argovie, was the seat of the 17 departments, or cantons, and the number of its representatives elected to the diet was nine. The whole body consisted of 57 members, chosen by the representatives of each district, and assembled at Bern, to organize the new constitution. The legislative authority was vested in the senate, composed of two landamanns and twenty-three counsellors. The executive power was lodged in a little council of four senators, in each of which the landamanns presided in turn. The landamann in office was to receive a salary of 50,000 French livres, and the other landamann and four counsellors 10,000 each. The salaries of the senators were not to exceed 6,000 livres. Each canton was governed by a prefect, nominated by the landamann, and was provided with its interior administration, which approved or rejected the projects of laws presented by the senate. By the conditions of eligibility, universal suffrage was abolished; and no person admitted to any public office, unless he was proprietor of land, or exercised an independent profession, and paid a contribution to the public burdens, the amount of which was regulated by each canton. A counter-revolution afterwards took place, by which the diet was dissolved, and the provincial government established as it existed before the 29th of May 1801. But the state of Switzerland is not yet decided. For a further account of the alterations that have taken place from this period in the constitution and government of the Swiss cantons, see Helvetia. Cox's Travels, vol. i. & ii. Piaut's Hist. of the Helvetic Confederacy, vol. ii.

The canton of Bern is fertile and well cultivated; the plains produce corn and fruit; and the Alpine eminences afford excellent pasture, which supports herds of cattle and flocks of sheep, from which they make butter and cheese. The inhabitants of the district of Zanenland in this canton, are principally herdsmen and shepherds, who hold a middle rank between that of cultivators and wandering Tartars or Armenians. Each family changes its habitation five or six times in a year; and every week it is customary to meet the father of his household, with his wife and children, and preceding them, herds, a chaise, kettle, and some wooden utensils, travelling, like an ancient patriarch, in search of a new residence. The country abounds with cows, and hens, most of which are constructed of wood and in such a manner as to be easily taken to pieces and removed for the convenience of their migration. In some of the valleys, the meadows are sometimes twice mowed, and thistled. The mountain herbage for the cattle continues ten or twenty weeks, according to its height and situation. When their winter forage is finished, they remove to the lowest parts of the mountains, and returning thence their whole flock, proceed with their flocks towards the summits. Their progress is regular and majestic. The most beautiful cow of the herd, adorned with a magnificent collar and bell, takes the lead, accompanied by the master of the family. Then follow his attendants, with the rest of the flocks. Shepherds and cattle are all bedecked with garlands of flowers; and every part is adorned with the jingling of bells, baying of cows, and cheerful notes of the herdsmen. The smaller flocks bring up the rear, and the procession is closed with the wife and children. Towards the end of August they again descend toward the lower parts, pasturing the last grass in the valleys, and at last retire to their warm retreats in the vale, to wait the return of spring and the same pleasing migration. In this part of the country no attention is paid to the culture of the meadow land; for though they couple
contrive to water their meadows without any fixed rules, and drain them in winter, they never drain those that are marshy, and water is left to flagrant on the sides of slopes and declivities. In the cold valleys, where in April the snow remains at the depth of some feet, they frequently flow mould on its surface, which soon melts it, and thus various gardens are cultivated in the midst of large tracts of snow. Potatoes have been lately planted, and are become a favourite food of the people, and in many cafes have been sublimated for bread instead of corn. The Alpine bean, ground into flour, serves the same purpose; whilst its leaves supply fodder for the sheep, and its stalk litter for the pens. Since the introduction of the commerce of cheese, the cultivation of corn has been annually decreasing. Some few spots of ground are, however, sown with wheat and barley, and others with hemp and flax, which are very thriving. The operations of the dairy render them negligent in the culture of fruit-trees; nevertheless, plum, cherry, pear, and apple-trees, are scattered here and there, but are nowhere collected into an orchard. In the German parts of Sanenland, they boil cherries with cloves and cinnamon into a kind of paste, which is preferred good for thirty years. Mixed with a few grains of mustard-seed, and other spices, they use it as a sweet mustard; and beaten together with spices and juniper berries, they allow it to ferment, and drink it as a red beer. For want of some regulation about their woods, whole forests are cut for palings to inclose their meadows, which soon become rotten, and useless even for fuel. Madder grows in this district wild and high. The most beautiful and most fertile spots of the canton of Bern are on the sides of the lakes of Geneva and Neuchâtel, where grow the most excellent fruits, and where are made the most valuable wines. In this canton are found a variety of coloured earths and clays, some of which are used for pottery, and stones of different sorts, pitted of Pairs, crystal, salt springs, coal, sulphur, mines of iron, copper, lead, and silver, and medicinal baths. They count in this canton 39 towns, great and small, and 1300 villages. The rivers that water it, are the Aar, the Emmat, the Wigger, the Reuss, the Limmat, the Sanen, and the Kandil. The principal lake is that of Geneva; besides which there are those of Neuchâtel, Biel, Murat, or Murten, Thun, Brienz, and Hasl, all which abound in fish. The part of the chain of the Alps seen from Bern, is distinguished by the different names of Wetterhorn, Schreckhorn, Füllter Aar-horn, Viefchernhorn, Exterior and Interior Eger, Engrace horn, Gletcher horn, Ebenfluh, Mittaghorn, Brithorn, Lauterbrunnen, Blumlis Alp, and Neïs; and it forms an amphitheatre, gradually rising from the environs of the city to elevated peaks, covered with eternal snow, and hitherto inaccessible. The Jungfrau, or Virgin, is one of the highest and most beautiful mountains in the canton of Bern.

The following table exhibits the height of the principal Alps in this canton.

<table>
<thead>
<tr>
<th>Mountain</th>
<th>Eng. Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Füllter Aarhorn</td>
<td>14,115</td>
</tr>
<tr>
<td>Jungfrau</td>
<td>13,730</td>
</tr>
<tr>
<td>Munch</td>
<td>13,510</td>
</tr>
<tr>
<td>Schreckhorn</td>
<td>13,397</td>
</tr>
<tr>
<td>Eger</td>
<td>13,080</td>
</tr>
<tr>
<td>Wetterhorn</td>
<td>12,217</td>
</tr>
<tr>
<td>All Els</td>
<td>12,194</td>
</tr>
<tr>
<td>Frau</td>
<td>12,153</td>
</tr>
<tr>
<td>Doldenhorn</td>
<td>12,039</td>
</tr>
<tr>
<td>Ni sen</td>
<td>7,819</td>
</tr>
<tr>
<td>Morgenberghorn</td>
<td>7,456</td>
</tr>
<tr>
<td>Holzgant</td>
<td>7,290</td>
</tr>
<tr>
<td>Stockhorn</td>
<td>7,218</td>
</tr>
</tbody>
</table>

The prevailing language is the German; but the people of fashion speak either French or Italian; and the common people in the Pays de Vaud, and in those parts that border on France and Italy, use a corrupt French or Italian, or a jargon, founded on both. The established religion is Calvinism; and the ministers are divided into deansaries and clerks, and hold yearly chapters or synods. They are more independent of the civil power than in the other cantons, and are forbidden to interfere in matters of state. The nobility of Bern are accused of an extraordinary degree of pride and fandelines, and affect to keep the citizens and persons of lower rank at a great distance. As the whole power of government, and all the honourable offices of state, are in their hands, they are not permitted to engage in trade; and without the places and pensions which they enjoy, they must be poor and wretched. The lucrative offices being thus in the hands of the nobility, it might be imagined that people of the middle and lower ranks are indigent and oppressed. This, however, is by no means the case; for the citizens, i.e. the merchants and trades people, feel in general to enjoy all the comforts and conveniences of life; and the penury is uncommonly wealthy throughout the whole canton of Bern. They possess the privilege of bearing arms, and form a very respectable body of military, that have been usually attached to the existing government, and particularly favoured by it. The manufacturer, in this respect, feels more than the peasant, is less regarded; and the government of Bern has been charged with discouraging, or at least not zealously promoting, manufactures and commerce. Mr. Coxe informs us, that, in his first visit to Switzerland, he found the people of Bern much less informed, and more indifferent about the encouragement of literature, than those of the other cantons; their academical studies being principally directed to those branches of knowledge that fitted them for the church; and the society for the encouragement of agriculture, which was almost the only establishment tending to promote the arts and sciences, obtained little countenance from government. However, in his second journey, after an interval of about ten years, viz. in 1786, he says, that the government, raised from the former slumber, had learnt to perceive that it is the interest of every state to educe and protect the sciences; and that the magistrates had lately purchased and appropriated at Bern a large manufactory for the public library, increased the collection of books, and procured from England an extensive apparatus for experimental philosophy. A literary society had also been instituted for the promotion of physics, and natural history in general, and that of Switzerland in particular. In January 1788, this society consisted of ten members resident at Bern, of whom several possessed, and others were forming, collectionsagreeable to the plan of the institution. A regular correspondence was also established in various parts of Europe; and the members have been disposed to satisfy the inquiries of foreign naturalists relating to the natural history of this country. The principal articles of exportation from this canton are horses, cheeves, linen cloth, coarse cloth and canvas made of hemp, cloth of cotton, and woollen stuffs. It is said that 10,000 pieces of linen have been sent annually from this canton; the principal part of which has been conveyed to Lyons. At Bern they have manufactures of silk, chiefly stuffs, and coloured stuffs. In the western part of the mountains, the principal employment is clock-making, and the polishing of sable stones.

Bern, a city of Switzerland, and capital of the canton of that name above described, derives its name, as it has been said, from a "bear," which was found there when its foundations were laid; "berno" in German signifying bears; and
and accordingly, it bears this animal in its arms, and always maintains one. It was built by Berchtold the 4th, duke of Zähringen, and was, from its foundation, an imperial city. Upon his death in 1218, the emperor Frederick II. conferred upon the inhabitants considerable privileges, and compiled a code which forms the basis of their present civil law. The liberty which this city enjoyed attracted many perfidies from the adjacent country; who found a sure asylum from the oppression of the nobles. Although Bern, from its foundation, was engaged in perpetual wars with its neighbours, and for some time with the house of Aulibr. yet it continued to aggrandize itself by degrees, and considerably enlarged its territory.

This is a regular well-built town, with some air of magnificence. The principal streets are broad and long, not straight, but gently curved; the houses are built of a greyish stone upon arcades, and are mostly uniform, and of the same height. On each side are piazzas, with a wall raised four feet above the level of the streets, which are very commodious in wet weather. A stream of the Aar runs in a clear current, and along a stone channel, through the middle of the streets, which furnishes several fountains not less ornamental to the place than beneficial to the inhabitants. The river Aar almost surrounds the town; winding its course over a rocky bed much below the level of the streets, and forming by its deep and craggy banks a kind of natural rampart. The stream that flows through the town serves to keep the streets always clean; for which purpose criminals are also employed in removing rubbish, both from the streets and public walks. The more atrocious delinquents are chained to wagons, while those who are condemned for smaller crimes are employed in sweeping the light rubbish into the rivulet, and throwing the heavier into the carts or wagons, which their more culpable companions are obliged to pull or draw along. These wretches have collars of iron round their necks, with a projecting handle in the form of a hook to each, by which, on the slightest offence or mutiny, they may be seized, and are entirely at the command of the guard, whose duty it is to see them perform their work. People of both sexes are condemned to this labour for months, years, or life, according to the nature of their crimes. The public buildings at Bern, as the hospital, the granary, the guard-house, the arsenal, and the churches, are magnificent, and announce the riches and grandeur of the republic. The cathedral is a noble pile of Gothic architecture, standing upon a platform raised from the bed of the river, and commanding a most extensive view. The arsenal contains arms for 60,000 men, and a considerable quantity of cannon, which is cant in the town. The Berne value themselves on the trophies contained in it, as well as upon the quantity, good condition, and orderly arrangement of the arms. Here is exhibited the statue of William Tell, who, with an arrow, is said to have struck off the apple placed upon his son's head by the governor Griffler, and by that means saved his life, which occasioned the beginning of the Swiss republic. The granary always contains a large provision of corn, supplied in consequence of particular treaties by France and Holland. The charitable institutions in this town are numerous, and well regulated. The hospitals are in general large, clean, and airy; and in the almshouse for the reception of 50 poor citizens, is a curious establishment similar to one at Delft, which provides for the reception of distressed travellers, who are accommodated with a meal and lodging at night, and each receives a small sum on their departure; if sick or wounded, they are maintained till their recovery. The house of correction is conducted partly on the plan of the benevolent Mr. Howard, and in consequence of his forgiveness. The delinquents are separated and distributed in two houses; one called the house of correction for greater crimes, and the other the house of labour for minor canons. The prisoners are all discriminated by the appendages of "brown" and "blue," from the colour of their clothes; the former being appropriated to the house of correction, and the latter to the house of labour. The men and women occupy separate apartments; and both are constantly employed in cleaning the streets and other servile occupations, and at other times in learning to read and write, and in acquiring the knowledge of various trades, which may enable them to gain a maintenance when their time of confinement expires. By these means the expense of the establishment is nearly supported, and a benevolent education is afforded to those who would otherwise prove useless or pernicious members of society. There are four tables, at which the respectively seats are made of distinction appropriated to good behaviour, and a larger or lesser share is distributed to each in proportion to their industry. After earning their food, the prisoners in the house of labour receive 10 per cent., those in the house of correction 8 per cent., for their extra-work. The torture at Berne is now formally abolished, by a public act of government: and justice is wisely and impartially administered. The solemnity used in passing capital sentence on a criminal deserves to be mentioned. When the trial is finished, the prisoner is informed of his condemnation by the "grand facteur," or lieutenant of the police, and attended by two clergymen to prepare him for death. On the day appointed for execution, a large scaffold, covered with a black canopy, is constructed in the middle of the principal street. The avoyer, with a sceptre in his hand, is seated on an elevated kind of throne between two senators, and attended by the chancellor and lieutenant of the police, holding an iron fiek, called "the rod of blood," all habited in their official robes. The criminal, being brought to the foot of the scaffold, without chains, receives the sentence of condemnation, which is read aloud by the chancellor, at the close of which the avoyer commands the executioner to approach, who instantly binds the arms of the culprit, and leads him away to the place of execution.

The public library is a small, but well-chosen collection, containing 20,000 volumes, to which additions have been made by purchase, and by the liberality of private contributors; to this belong also a few antiques, a cabinet of Swiss coins and medals, some curious manuscripts, particularly of the thirteenth century, confiding of several fables and romances of the Troubadours, written in that and the preceding ages, and some other curiosities. The small figure of the priest pouring wine between the horns of a bull, is merely valuable, because it illustrates a passage of Virgil, and has been mentioned by Addison.

To the account of the public buildings of Bern, we may add that of an elegant cloister, built by the voluntary subscription of the nobility, furnished with accommodations for many public amusements, such as halls, concerts, and theatrical entertainments, which latter are seldom permitted in this city. The walk by the great church was formerly the only public walk, and much admired on account of the view from it, and the peculiarity of its situation; being on one side a level with the streets, and on the other some hundred feet of perpendicular height above them. Besides this, there is now another walk on a high bank on the side of the Aar, and at some distance from the town. This walk is singularly magnificent, commands a view of the river, the town of Bern.
Bern, the country about it, and the glaciers of Swifferland. The adjacent country is richly cultivated, and agreeably diversified with hills, lawns, wood, and water; the river flows rapidly below, and an abrupt chain of rugged and snow-capped Alps bounds the distant horizon.

The population of Bern is estimated at about 13,000; the society is extremely agreeable; and foreigners are received with great care and politeness. The men do not meet in separate societies; and the women are the life and ornament of their daily assemblies, which begin about four or five in the afternoon, and continue till eight, when the parties usually retire to their respective houses. The inhabitants are particularly fond of dancing, which of course is a frequent amusement; and this diversion commences at the early hour of five in the afternoon, on account of a standing order of government, which prohibits their continuance after eleven. There is but little trade in the capital. Some few manufactures, chiefly of linen and silk, have been established; but they are carried on only by those who have no prospect of being admitted into the sovereign council, and who would think themselves degraded by commerce. But as offices of the late, thole of the bailifges excepted, are neither numerous nor very profitable, many enter, as their sole resource, into foreign armies. As for the peasants, who have acquired opulence either by manufactures or commerce, they seldom quit their farms, but retain the habits acquired in early life, and, however wealthy, never give their daughters in marriage to any but persons of their own description. Of the burghers of Bern, those only are qualified for the magistracy and government of the city, who are the defenders of such as were made burgesses before the year 1635; and, besides, they must not be under 50 years of age, and must be enrolled in one of the twelve companies. The British envoy to the Swiss cantons usually resides at Bern. N. lat. 46° 55', E. long. 7° 26'. Coxe's Travels, vol. ii. Moore's View of Society, &c. in France, Switzerland, &c.

**Bern-Machine, in Agriculture, the name of an engine for rooting up trees, invented by Peter Sommer, a native of Bern in Switzerland.** This machine, of which there is a model in the machine-room of the Society for the encouragement of Arts, is represented in Plate 111. Agriculture; and consists of three parts, the beam, the ram, and the lever. The beam ABC (N° 1) of which only one side is seen in the figure, is composed of two flout planks of oak, three inches thick at least, and separated by two transverse pieces of the same wood, at A and C, about three inches thick. These planks are bored through with corresponding holes, as represented in the figure, to receive iron pins, upon which the lever rests between the two sides of the beam, and which is shifted higher and higher as the tree is raised, or rather plucked out of its place. The sides are well secured at the top and bottom by strong iron hoops. The iron pins on which the lever rests should be an inch and a quarter, and the holes through which they pass, an inch and a half in diameter. The position of these holes is sufficiently indicated by the figure. The foot of the beam, when the machine is in action, is secured by flakey representations at G, driven into the earth. The ram D, which is made of oak, elm, or some other strong wood, is capped with three strong iron spikes, represented at f, which take fast hold of the tree. This ram is six or eight inches square; and a slit is cut lengthwise through the middle of it, from its lower end at K to the first frnace a, in order to allow room for the chain gb to play round the pulley K, which should be four inches thick, and nine inches in diameter. This ram is raised by means of the chain gb, which should be about ten feet long, with links four inches and three quarters in length, and an inch thick. One end of this chain is fastened to the top of the beam at C, while the other, after passing through the lower part of the ram, and over the pulley K, terminates in a ring or link, represented N° 3, the two ears mn of which serve to keep it in a true position between the two planks of the beam. In this ring the hook P is inserted. The hook is represented in profile N° 2, where F is the part that takes hold of the ring. But it must be observed, that the parts of this machine, represented in N° 2, 3, are drawn on a scale twice as large as the whole engine. The hook F, N° 2, should be made of very tough iron, as well as the handle G, and the arch E. This handle should be two inches thick at a, where it joins to the hook, and the thickness gradually lessens by degrees up to the arch, which need not be more than half an inch thick. On each side of the pin z, is a semicircular notch, x, y, which rests alternately on the pins when the machine is worked. The hole D, and the arch E, serve to fix a long lever of wood EF, N° 1, by means of two iron pins; and by this contrivance the lever is either raised or depressed at pleasure, in order to render the working of the machine easy in whatever part of the beam the lever may be placed; for without this contrivance the extremity of the lever EF, would, when the handle is near the top of the beam, be much higher than men standing upon the ground could reach. It must however be remembered, that the lever is often shortened by this contrivance, and consequently its power lessened.

The machine is worked in the following manner: It is placed against a tree, in the manner represented in the figure, so that the iron spikes at f may have hold of the tree, and the end of the beam A be supported by flakey represented at G. The iron handle N° 2, is placed in the opening between the two planks of the beam, and the wooden lever fixed to it, by means of the iron pins already mentioned. The hook F takes hold of the chain, and one of the iron pins is thrust into the outer row of holes, by which means the outer notch x will rest on the pin, which will be now the centre of motion; and the end of the lever E, N° 1, being pressed downwards, the other notch y, N° 2, will be raised, and at the same time the chain, and consequently the ram. The other iron pin is now to be thrust into the hole in the inner row, next above that which was before the centre of motion, and the end of the lever E elevated or pushed upwards, the latter pin on which the notch y rests now becoming the centre of motion. By this alternate motion of the lever, and shifting the pins, the chain is drawn upwards by the pull of the pulley K, and consequently the whole force of the engine exerted against the tree. There is a small wheel at L, in order to lessen the friction of that part of the machine.

From this account the reader will very easily perceive that the machine is nothing more than a single pulley compounded with a lever of the first and second order. It must, however, be remembered, that as the path of the engine is given in an oblique direction, it will exert a greater or less force against the horizontal roots of the tree in proportion to the angle formed by the machine with the plane of the horizon; and that the angle of 45° is the maximum, or that when the machine will exert its greatest force against the horizontal roots of the tree.

**BERNABEI, Ecorel. in Musical Biography, the schollar and successor of Benvenuti at St. Peter's, and insector of the abate Steffano, may be ranked among the greatest masters of harmony, in the ancient ecclesiastical style, or the 17th century. This composer being invited by the elector of Bavaria to Munich, about the year 1650, entered into the service of that court, where he continued the rest of his life. His son, Giuseppe Ant. Bernabei, after following his father's steps in the study of ecclesiastical harmony,urnished him considerably.
considerable in melody and modulation, as he lived long enough to be a great relaxation in the figure of ancient rules. There is a canon by this composer in the first edition of Paulusdi, page 158, and an excellent Agnus Dei, in D. Martini Sag. in Contrap. H. 1. 125, extracted from his mass, for four voices, intitled, "Laudate cœlia, quia sicut in triuitia." After succeeding his father as maestro di capella to the elector of Bavaria, by whom he was honoured with the title of cantor unico, and publishing several compositions for the church, replete with musical science of the first class, he lived till the year 1572, extending his existence to the greatest age of eighty-four.

Their masters, with many other good harmonists, in the style of the 17th century, supplied the churches of Italy with numerous compositions, in which the chief most confederated in pure harmony, and the contrivance of canon, fugal, and imitation on simple and often aspolid subjects; but to these excellent the best moderns have added melody, a more varied modulation, and not only an attention to long and short syllables, but to the expulsion of words. In the 15th century almost every mass was composed upon the subject of some well-known song or ballad; but these all being palemonodic, and a little more lively or varied than cantus firmus, admitted of no greater variety of modulation than the ancient charts of the mass, upon fragments of which, during the 16th and part of the 17th centuries, it was thought necessary to construct the chief part of choral music. Though the present fluctuations in counterpoint at Naples, and other parts of Italy, fill exercise themselves in harmonizing cantus firmus, the writing masses or motets to which the subjects of these chants is seldom done but in pure pedantry, and to give an air of antiquity to dry and fanciful compositions.

The church style of composition was, however, much altered during the 17th century, not only by the imitation of dramatic music, and the introduction of instruments, but by writing in transposed keys, and supplying the deficiencies in the scales, which too strictly an adherence to the species of octaves, and modes of the church, had occasioned. Indeed, before this time, there was no decision of keys, either in sacred or secular music, according to our present rules of beginning and ending upon the chord major or minor, or the key note, or of forming determinate notes in the scale. The prohibitions were so numerous in the writings of the old theorists, that if the most regular modern compositions were tried by such rules as published at the beginning of the 17th century, they would appear extremely hecious. No part was to be extended above or below the flaut, or five regular lines, on which it was written; the combination of chords was never to be broken by moving to an inharmonious harmony; and the intervals of the sharp seventh, the tritons, or sharp fourth, flat fifth, flat second, and even the major fifth, were prohibited. Indeed, an excellent composition might now be produced, merely from ancient dispositions.

BERNAGORE, a town of Hainaut, in the country of Belgium, on the canal of the Ganges, 15 or 12 leagues below Chiafulah, and 3 miles N.W. of Moorfield. The coast forts of Saint-Clouds are here made. It is famous on account of the great number of lakes of pleasure, which are there, and who pays a monthly recognition to the festival of Chiafulah, for the fine exercises of their profession. It belonged to the Dutch; but was taken by the British forces in October, 1593.

BERNAL, a hill on the west coast of New Mexico, near the road, and 4 leagues W.S.W. of the burning mountain of San Salvador. N. lat. about 117°. W. long. about 97°.

BERNARD, in Biography, abbot of Clairvaux, and a faint of the Romish church, was born of a noble family at Fontaine in Burgundy, in 1091, and educated at the church of Chartillon, where he manifested at an early period an ardent spirit of devotion. At the age of 23, he, and 50 of his companions, entered into the abbey of Citeaux, lately founded by St. Robert. Here he acquired such reputation, that, within two years, viz. A.D. 1115, he was deputed, with a colony of monks, to found the abbey of Clairvaux in the diocese of Langres, of which he was created the first abbot, and where he continued, without exciting or accepting any higher pre-eritance. In a short time he found himself at the head of 700 novices, and by his eloquence and zeal, Clairvaux became a seminary of the most distinguished reputation, so that, during the life of the founder, it produced one pope, six cardinals, and thirty prelates. In this retreat the influence of Bernard was greater than if he had occupied the throne of St. Peter; he was consulted as an oracle; his counsels were regarded as wise in the remotest parts of Europe; and the Cistercians, by his example, became so powerful, that it produced 100 convents, which acknowledged him as their head. Having exerted himself in restoring peace to the church, which had been interrupted by the schism that had happened between the years 1139 and 1138, he engaged in the suppression of the order of Abalard, who had propagated some opinions that were thought to militate against the doctrines of the church; and proceeded in destroying his abbeys by the council of Sens, in 1146. He also refuted the errors of Peter de Bruys (see PETERBRUS), and combated the fanaticism of the APOSTOLIÆ, which had a stroke of the sword against the Saracens. In this romantic expedition, he engaged, by his eloquence, Lewis VII. of France, with his principal nobles, and the curii Plenariarum; and he bore, that from Constance to Cologne, he impelled and guided all his adherents, and ventured the peril of the only man being left to defend women. Many of the monks of Clairvaux, who were required to leave and close him, he obtained the appointment of "Pius Manning," or wanderer of the world. The enterprise which he had entered with Conrad and Lewis proved unfortunate; and the abbot, who had predicted their success, incurred a variety of calumnies and reproaches on account of the calamities which had fallen upon them. He died in 1153.
been instrumental in bringing upon Europe. He attributed its failure to the sins of the croises, which had hindered the accomplishment of his prophecies. How far he was affected by the difcomfiture and general dillets in which this expedition terminated, or by the accumulations he suffered, is it impossible to say. However, it is certain that he did not long survive that disastrous event; for he died at Clairvaux, in 1153, in the 63rd year of his age.

Few men possessed a more extensive and uncontrollable command over the minds of men than St. Bernard; and his influence was wholly owing to his personal qualifications. But though he had an absolute command by his eloquence and writings, he seems to have been more an enthusiast than a politician, and to have wanted worldly wisdom to direct and manage the various engines which he put into motion. With good intentions he blundered passion and prejudice, and the love of power. He was, without doubt, a man of distinguished piety, as well as integrity; and, considering the time in which he lived, an elegant and learned scholar. Erasmus gives the following character of him: "Christiane doctus, et sancte facundus, et festus". As a writer, he was copious; his style was characterized by force, vivacity, elevation, and sweetness; and his imagination furnished him with figures of comparison and strong antitheses in great variety and abundance; so that he has been regarded as the last of the fathers formed upon the models of St. Ambrose and St. Augustine. The best edition of Bernard's works is that of the learned Benedictine Mabillon, in 2 vols. fol. first printed at Paris in 1666, 1667, and reprinted in 1690 and 1719. A Latin impression of this edition was made at Venice, in 6 vols. fol. Cave's Hist. Lit. ii. p. 186. Gen. Ditt. Nouv. Ditt. Hist.


Bernard of Menthon, the founder of a religious community, was born in the Genevois 905, and defended from one of the most illustrious houses of Savoy. Having dedicated himself to the ecclesiastical profession, he retired to Aosta, a small town at the foot of the Alps, and became arch-deacon of its church. Here he employed himself in missions among the unconverted Pagans, who inhabited the mountains, and professedly them to Christianity. Having witnessed the hardships and dangers encountered by the French and German pilgrims, in their passage to Rome over the Alps, which Hannibal had anciently traversed with singular fortitude and perseverance, this benevolent monk founded two monasteries, or hospitae, for their relief, on Mont-joux, called from him "Great and Little St. Bernard." These were peopled with canons-regular of St. Augustine, and Bernard himself became their first prior. He obtained several important privileges for his establishment from succceptive popes, and it acquired great popularity and large possessions. Bernard died at Novaro, at the age of 85, and was canonized by the Roman church. His cult has undergone a variety of vicissitudes, and lost great part of its riches; but it still subsists, and is eminently useful. There are ordinarily between twenty and thirty monks belonging to the convent; eight of whom are usually dispersed among the Alpine parishes, under their patronage; and ten or twelve constantly reside, being fitted, from their age and health, to be able to bear the keen atmosphere of the mountain. The few others, who can no longer bear it, are permitted to reside with the aged provost of the whole, in a house belonging to the convent, and situated at Martigny below. The monks of the mountain are industriously employed in the prosecution of their private labours, in the instruction of their novices, in the education of some scholars who are sent to board and lodge with them, and in managing the temporal economy of the whole. They have a prior, the deputy of the provost, and governor of the convent in his absence; a sacristan, who takes care of their chapels; a cellarer, serving as purveyor, controller of the kitchen, and managing all the exterior concerns of the monastery; a inquirer who keeps the keys, and dispenses the requisite articles to the monks and to the travellers; and an infirmier, who takes care of the sick in the apartment appropriated to them. The cellarer keeps twenty horses constantly employed during the summer in fetching the magazines of flour, bread, cheese, liquors, and dried fruits, for themselves and their guests; and forage for the milk cows and fattening cattle, during winter. Their fire-wood, of which they expend a great quantity, is brought to them on the backs of mules, from the distance of four leagues, and by a steep path, that is passable only for six months in the whole year. Before the winter sets in, they fend down their horses for the season to a farm which they have on the northern side of the Rhone. To a sympathetic and compassionate mind it is peculiarly pleasing to observe the solitude of these amiable monks on such days as the pas is most frequented, in personally receiving, warning, and recovering travellers, that are exhausted by their excess of fatigue, or indisposed from the severity of the air. With equal attention they relieve both their own countrymen and foreigners. They make no distinction of state, sex, or religion; and ask no questions concerning the constry or the creed of the wretched. In winter and in spring, their solictude has a larger range of attention and activity. From that very time nearly, in which Hannibal conducted an army over the Grisons pass, into which the Romans reckoned the general winter of Italy to commence, from the 1st of November, through the winter, to the 1st of March, the Alpifalian fervant, who, as an Alpin, is denominated a Maronner, and one or two dogs of an extraordinary size accompanying him, are constantly engaged in going to meet travellers a considerable way down the descent towards the Vailais. These dogs possess an instinct, and receive a training, which fit them to be peculiarly useful in their employment. They point out the road to the guide and the travellers, through fogs, tempests, and snows; they have also the sagacity to discover travellers that have lost their way, that have fallen amidst the drifts of snow, and that are lying upon them, wearied and exhausted. The monks themselves often accompany the guide, and aid him in administering necessary relief. Apprized of the benumbing and stupefying effect of extreme cold, they route the sleeping travellers, and exert themselves in a variety of ways in preserving and recovering them from approaching or apparent death; and in doing this, they expose themselves to great danger. In order to avoid the numbness occasioned by the cold, they carry with them short thick flaps, armed at the ends with iron, and with these they continually strike their hands and feet. About three miles below the convent, on the road of Hannibal's ascent, they have built a small vaulted room, called the hospital, which is intended for the casual refreshment of travellers benumbed, and unable to reach the convent. The trysty Maronner visits it frequently, in order to meet the traveller; but principally at the approach of night, and on his return leaves bread, cheese, and wine. On extraordinary occasions, when a storm subsides, he falls for this building, with his flock of wine and meat, and affails all whom he finds disfreted. The monks themselves are often seen on the tops of these rocks, watching opportunities for the extricate of their humanity. When the snow just fallen is deep on the ground, they employ themselves in making roads through it, and thus by timely vigilance prevent many fatal accidents. But notwithstanding all their charitable efforts, scarcely a winter passes in which some traveller is not brought to the convent with his limbs benumbed and frozen. The traveller is sometimes overwhelmed at once, and plunged into the body of descending snow. When he is not very deep, the dogs discover
BERNARD.

discover him by the scent; and when they fail, the monk engages in the laborious office. They range upon the snow, and find it with long poles; and they have thus redeemed many from imminent danger of being lost. Nouv. Dict. Hist. Savoirs Voy., des Alpes, vol. ii. Whitaker on the Course of Hanover over the Alps, &c. 1794. See BERNARD, Geography.

BERNARD, Andrew, a Latin scholar, and successively post-laureate to Henry VII and Henry VIII, was a native of Thoulouze, and an Augustin monk. He was not only the king's post-laureate, as it is supposed, but his historiographer, and preceptor in grammar to prince Arthur. He obtained many ecclesiastical preferments in England. The pieces which he wrote under the character of post-laureate, are in Latin. There are, "An Address to Henry VIII. for the most suppurpicious beginning of the 10th year of his reign," with an Epithalamium on the marriage of Francis, the dauphin of France, with the king's daughter; "A new year's gift," for the year 1515; and "Veves," wishing prosperity to his majesty's 15th year. He has left some Latin hymns; and many of his profe pieces in Latin, written as historiographer to both monarchs, are extant. Warton's Hist. Eng. Poetry, vol. ii. p. 132.

BERNARD, Edward, a learned English mathematician and linguist, was born at Perry St. Paul, near Towcester, in Northamptonshire, in 1638, and educated at Merchant-Taylor's School in London, whence he was removed, in 1655, to St. John's college in Oxford. Here he applied himself with the utmost diligence to the study of history, philology, and philosophy; and acquired an accurate knowledge, not only of the Greek and Latin languages, but of Hebrew, Syriac, Arabic, and Greek. He also directed his attention to the mathematics, which he studied under the celebrated Dr. Wallis. Having taken several academical degrees at Oxford, and engaged the esteem of all who knew him, by his distinguished talents and learning, and no less amiable temper, he removed in 1668 to Leyden, with a view of examining several MSS., and particularly the Arabic version of the three chief Greek books of Apollonius Pergamus's conic sections, sought from the east by James Gollis. These books were transcribed, with an intention of publishing them at Oxford, but his design was never executed. Upon his return to Oxford, he resumed his studies with fresh vigour, and by his collection of the most valuable MSS. in the Bodleian library, the result of which was always ready to communicate, he was engaged in a very extensive correspondence with learned men of most countries. About the year 1669, he was recommended by the famous Dr. (afterwards Sir Christopher) Wren, to be a professor of astronomy at Oxford, to be his deputy, and he succeeded this eminent professor, on his resignation in 1673. He had been previously inducted to the rectory of Cheene in Surry, and appointed chaplain to Dr. Mervin, bishop of Bath and Wells. A scheme having been projected in the university of Oxford, which was chiefly proposed and encouraged by Bishop Pell, for collecting and publishing all the ancient mathematicians, Bernard, who first formed the project, assiduously engaged in accomplish it, by collecting all the old books and MSS. in the public libraries, and drawing up a synopsis of their contents. He also printed, at his own expense, as a specimen of this noble design, a few sheets of Euclid in folio, containing the Greek text and a Latin version, with Drury's commentary in Greek and Latin, and learned scholia and collations. With a view of promoting this study of astronomy, he also took an edition of the "Parva Synthetica Mathematica," or "Novus Epitome," of which there is an account in the "Veterum Mathematicorum Syntagma," and in which, besides Euclid, are contained the small treatises of Theodorus, Autolycus, Menelaus, Arisarchus, and Hipparchus; but this was never published. In 1666, he was sent to France by king Charles II. as tutor to his two natural sons, by the duchess of Cleveland; but his disposition and habits not being adapted to this situation, he returned, after a year's absence, to his studious retirement at Oxford. During his stay at Paris, however, he cultivated an acquaintance with several learned persons, collated various ancient and valuable MSS., and bought many scarce and curious books for his own library. At Oxford he pursued his studies with renewed acuteness; and besides mathematics, to which he applied according to the duty of his professorship, he devoted himself to inculcation to the prosecution of history, chronology, and antiquities. At this time he undertook a new edition of Josephus, which he never completed. In 1683, he visited Holland, for the purpose of attending the sale of Nicholas Heinsius's library, where he purchased many valuable books; and on this occasion he renewed, or contracted an acquaintance with several persons of eminent learning. As he experienced many civilities from the Dutch, and found that in Holland he should enjoy favourable opportunities for making great improvement in original learning, he seemed much inclined to settle at Leyden; but, disappointed in his expectation of being chosen professor of the oriental tongues in that university, he returned to Oxford. In 1684, he took his degree of doctor in divinity; and in 1691, he was presented to the rich rectory of Brightwell in Berkshire, which, being at the distance of about 9 miles from Oxford, allowed of his occasional residence in that city. Soon after he resigned his professorship of astronomy, which had been for some time irksome and unpleasant to him, in favour of Dr. David Gregory, professor of mathematics at Edinburgh. In 1692, he superintended the preparation of a catalogue of the MSS. fold by the library of Great Britain in Ireland, and in some foreign libraries; and in the following year he married an agreeable lady in the bloom of youth, with whom he lived very happily. In 1696, he attended the sale of Golius's MSS. in Holland; and not long after his return fell into a constitutional decline, of which he died in January 1697; and he was interred in St. John's college chapel. His widow erected a monument of white marble, in the middle of which there is carved the figure of a 'heart,' circumscribed, according to his own direction, by the words: "Habemus Cor Bernardi." The publications of Dr. Bernard, were some astronomical papers in the Philosophical Transactions, N. S. 158. p. 587, N. S. 163. p. 721 and N. S. 164. p. 747. "A Treatise on the ancient weights and measures," first printed at the end of Dr. Pococke's Commentary on Horae, and afterwards reprinted in Latin, with great additions and alterations, Oxon. 1668, 8vo. ; "Private Devotions," &c. Oxford. 1670, 12mo. "Orbis eruditissimae, a character Samaritico deducta," in a large leaf of engraving, exhibiting at one view the alphabets of many nations, together with the abbreviations used by the Greeks, physicians, mathematicians, and chemists; "Etymologianum Britannicum," Oxon. 1689, printed at the end of Dr. Tucker's Grammar Anglo-Saxonica, &c.; "Chronologia Samaritarum Synopsis," published in the "Acta Eruditorum Lippomensi," April 1691. He was also the author of some notes and commentaries, printed in editions of learned works. He likewise affixed several learned prefaces to their editions of books, and collated MSS. for them. Among his papers were found many MSS. of his own composition, with very large collections, which, together with several of his books, he purchased by the curators of the Bodleian library. The rest of his books were sold by auction. Of his great and extensive learning, his works are a sufficient evidence. Dr. Smith, his biographer, represents him as a man of a mellow, mild, and conciliating disposition, worse from constell of
B E R N A R D.

Doit faire encore les délices du monde,
Quand de premiers on ne parlera plus.


BERNARD of Bragelone, a painter of animals and hunting-pieces, in which he excelled, by giving to his wild animals a strong and spirited expression. He was patronized by Margaret, countess of the Netherland, for whom he designed febrickets for tapestry, and in the service of the emperor Charles V. he painted hunting pieces, in which he introduced the portraits of the emperor and of all his attendants. In a picture of the last judgment, he covered the pannels with leafs, before he laid on his colours, and thus preserved them from changing, and gave to his tints a heightened luire. His method is said to have produced a happy effect, particularly in the sky. He died in 1549: the time of his birth is not known. Polkington.

BERNARD, SOLOMON, an ingenious engraver, was a native of France, and resided chiefly at Lyons. He worked chiefly for the booksellers, and his engravings were designed with spirit, and executed in a clear, neat style. He appears by his works to be a man of great genius, and fertile invention. His most esteemed performance is a set of prints for the Bible. He flourished from 1550 to 1580. Strutt.

BERNARD, FRANCIS, doctor in medicine, was principal physician to king James II., and in considerable practice. He left a large collection of scarce and valuable books, which was sold in 1698, the year after his death, for 1600/. His brother Charles, who was surgeon to the princess Anne, and who had the same passion for collecting books, left also a curious library, which was sold by auction in 1711. The "Specchio della Bellea triumfante," by Jordano Bruno, an Italian atheist, which was in this collection, was sold, as we learn from the Spectator, No. 589, for 30/. This book was printed, Ames lays, in England in 1584, by Thomas Vant-roller. An English edition of it was printed in 1715. New Gen. Biog. Dict.

BERNARD, CHRISTOPHER. This surgeon, who lived in the beginning of the 18th century, is only known as the author of two books, very popular in their time, though now in little request. "The present state of surgery, with some remarks on the abuses committed in it," London, 4to. 1723. "The crafts and frauds of physick exploded, discovering the low prices of the bell medicines," 8vo. 1703. Haller. Bib. Med.

BERNARD, Sr. in Geography, a town of Germany, in the archduchy of Austria, 2 miles N.W. of Horn.—Also, an island of North America, in the lake of Nicaragua.

BERNARD, south end of a small land between Southward and Lecolof, on the coast of Southof, the north end of which is called "Newcomby," about a mile from the shore, within which small vessels may pass in good weather and a full sea.

BERNARD River, a river on the west coast of France, which falls into the bay within the island of Belleisle.

BERNARD's Bay, lies on the N.W. side of the gulf of Mexico. The passage into it, between several islands, is called Pasc des Devals near Savoy, and particularly from the duchy of Aosta, in the principality of Piedmont, and from which flows into the former country the river Drance, and into the latter, the Doire. On the summit of this mountain is the monastery of St. Bernard (see Bernard), supposed to be 8006 feet above the level of the Mediterranean. N. lat. 45°, 48'. E. long. 7° 2'. It was by this track that Hannibal is supposed to have conducted the Carthaginian army into Italy;
BER

Italy; and it was in the same direction that Bonaparte, the end of France, led his army of revenge over the Alps, previously to the battle of Marengo, in the year 1800.

BERNARD, "Little St., a part of the Alps, anciently Alpes Grana, with the duchy of Aosta from Savoy, and lying to the south-west of the former. Over this lies a road into Savoy, and upon it is a monitory or hospitium for the convenience of travellers.

BERNARDI, the Hermits, in Entomology, the name by which Carenotherus is very commonly known. This creature is also called the hermit crab; a name inerratically applied to all species of the genus Carens, or, in other words, to all those which, having no shell covering to protect the body, inhabit the shells of whelks, or other gastropod shells. See PAGURUS FABER.

BERNARDI, STEFFANO, in Biography, was a learned theologian in Church, as well as composer of masses and madrigals, of great elaboration and correct form. He flourished from 1611 to about 1643, and in 1623 was made a doctor of theology at Verona. He published a didactic work, called "Porta Musicae," the first part of which appeared at Verona, 1617, in quarto, and, as an elementary tract, it has met with universal applause. See PAGURUS FABER.

BERNARDI, in Biography, see ANELLI.

BERNARDI, ANTONIO, was born in Roma, in Tuscany, in 1820, according to Mr. Warton, but in 1825, according to M. Du Puy. After studing at Sienna, he entered into the confraternity of the hospitalers of San Giuliano, and distingushed himself by his attendance on those who were afflicted with the plague. In 1402 or 1403, he became a member of the Franciscan order, and afterwards an emigrant preacher. Besides the natural and acquired talents which he possessed, the power of working miracles was ascribed to him both during his life and after his death. He visited Jerusalem under the character of commissary of the Holy Land, and after his return visited several cities of Italy, where he preached with great applause. Being accused to pope Martin V. for maintaining some erroneous opinions, he explained himself to the factotum of the pontiff, and was absolved. Such were his humility and devotedness that he refused several bishoprics, and contested himself with the office of vicar-general of the confraternity of St. Francis in Italy, and as such he found 360 monasteries. He died at Avila, in April 1444, and was canonized 1450 by Pius II. He left about 110, which were printed at Venice in 1569, 4 vols. 4to.; and at Paris in 1636, 2 vol. 1to. They consist of religious treatises, sermons, commentaries on the Apocalypse, &c. See PAGURUS, Gen. Dict.

BERNARDI, in Geography, a mountain of Switzerland, being one of the Alps, separated from the Rhine by a range of hills. It is situated between the valleys of Cottolengo and Viso. In the mountain springs therein are mineral waters, which are esteemed of great use to sick persons. BERNARDI, or BERNARDINI, in English History, the name of a religious order, differences very greatly to that of the Cisterceans. They derived their name and order from St. Bernard, abbot of Cluny, who was the second parent and founder of the Cistercians in the Roman Church. Their usual habit is a white gown, with black cap and scapular: but when they officiate, they put on a large white cope, with a hood of the same colour. See PAGURUS, lap., and 3rd, or other group of the South Sea, called St. Bernard, in Madagascar, and supposing by M. Heuneck, in his "Dei Regni," 1768, and 1769, "to be Mr. Byrnes's "Isle of Longi." Mendes fay, that St. Bernard was in S. lat. 10° 30' and 14° 30' (Spanish) leagues from Lima, allowing Lima to be in W. long. 77° 50' and 14° 30' (Spanish) leagues from the latitude of 10° 30' to make 87° 50' of longitude. The latitude of St. Bernard will be about 15° 20'. But the situation of St. Bernard may be more accurately determined from that of the Marquesas, placed by Capt. Cook, in his second voyage, in W. long. 139° 9', for Figueroa says, that Mendes fay, that Mendes fay, that the Marquesa died 14° 30' (Spanish) leagues from the Marquesas, before he made St. Bernard, and 4° 30' Spanish leagues in the lat. of 10° 30', making 21° 30' difference of longitude; if this be added to 139° 9', we shall have 162° 23' W. for the longitude of St. Bernard. Com. Byron places the Islands of Danger in S. lat. 10° 38', and W. long. 169° 53'; but Mr. Wabes, who collected and published the astronomical observations which were made in Hawkefirth's voyages for the Board of Longitude, reduces this longitude to 162° 25' W., exceeding that of Peru only by 2° 37'. Mr. Heuneck, in "Memoire pour la Tranfet de Venet," Paris, 1767, p. 51.) in thinking that this diocese is not the same with that which Quiros faw, and called St. Bernard, in 1625; but Mr. D'Alambré thinks that they are the same; and it is probable that Quiros thought for; for in enumerating his own discoveries, Philip H. of Spain, in the memorial which he presented to that monarch for "D'Alambré's collection," vol. i. p. 145.) he omitted this island, whence it may be inferred, that he thought it to be a discovery which belonged to another period.

BERNARDI, ST. DE TARIBAH, a town of South America, and principal of the district of Chicar, or Tarijah.

BERNARDSTOWN, a township in Somerset county, New Jersey, America, containing 3377 inhabitants, including 93 slaves. — Alto, a township in Hampshire county, Massachusetts, containing 697 inhabitants; 8 miles 100 miles W. from Boston.

BERNASCONI, ANDREA, in Biography, born at Verona, but who resided chiefly at Venice, was a pleasing and graceful composer. He flourished at the same time as Hass, and though inferior to him in force and resources, it is said that Fauthia, the wife of Hass, used to prefer the melodies of Bernasconi. He resided long at Munich, in the service of the elector of Bavaria, where he died about the middle of the 17th century.

BERNASCONI, LA SUGNA, daughter of the composer of that name, arrived in England, 1778, as first woman at the Lyceum, when Pacchierotti appeared there for the first time. She had gained considerable reputation as an actress at Vienna, in the part of Eurydice, when playing with Mache in Gluck's Orfeo, which had much grace derived from its novelty of style; that der long period of this success to the Bernasconi's vocal powers, we expected more than we found. And little is to be said of her as a performer, except that she had an artistic and elegant manner of singing, though her voice was pleasant, and in day.

BERNAY, of geography, a town of Germany, in the archbishopric of Aix-la-Chapelle, in the North of W.; a town of Germany, in the archbishopric of Aix-la-Chapelle, and in the diocese of Freiburg, surrounded with walls, ramparts, and ditches; containing an army; the principal citadels of which is the, of which large quantities are brewed in this town; 141° 17' N., 9° 54' E.

BERNAYVILLE, a town of France, in the department of Somme, and chief place of a canton; 1,272 miles of Doullens, 2,270 leagues north-west of Dijon. The population of the town is considered 9943 persons. The parochial extent contains 15° 14' 9"., and 27 villages.

BERNAY, a town of France, in the department of the Eure; 71 leagues south-west of Evreux. Its population amounts to 6122, and that of the canton to 13,957 persons. Its extent in kilometres is 181,
and it contains 21 communes. N. lat. 49° 6'. E. long. 0° 52'.

BERNINA, in Latin Berninam, Arpepolis, and Urfae, a town of Germany, in the circle of Upper Saxony, the capital of Anhalt Bernburg, and the residence of the prince, seated on the Saal. It is divided into the Old and New Town, which had each its own magistracy, till they were united in 1560; besides which, there is a third part, called "Vordenburg," seated on a hill on the other side of the Saal, under a distinct magistracy. The church in this part serves for the castle and the court. The castle is one of the most ancient and most celebrated fortresses in the principality of Anhalt; 20 miles west of Delfn. N. lat. 51° 55'. E. long. 12° 36'.

BERNECASTEL, a town of Germany, in the circle of the Lower Rhine, and electorate of Treves, and chief place of a canton, in the district of Treves, and department of the Sarre, seated on the Moselle, and owing its privileges to the emperor Rudolphus I.; 8 miles E.N.E. of Treves. Its population includes 1263, and that of the canton 11,718 persons. It contains 34 communes. N. lat. 52° 1'. E. long. 6° 36'.

BERNE, a township of America, in Albany county, New York. According to the late census of 1796, there appear to be 477 electors.

BERNECK, a town of Germany, in the circle of Franconia, and principality of Bayreuth.

BERNECOURT, a town of France, in the department of the Meurthe, and chief place of a canton in the district of Pont-à-Mousson, 3 leagues S. W. of Pont-à-Mousson.

BERNERA, or Bernay, one of the westerham islands of Scotland, is only about four miles in length, and one and a half in breadth. The soil of it is sandy, but when well-measured proves extremely fertile, and produces some fine com and clover. It has a freshwater lake, called Lochbruis, which has some small islands, and abounds with eels. These are frequently caught in great numbers by the inhabitants, who resort in the night, with lights, to a small rivulet, where the eels are found going towards the sea. They are often caught twilled together in heaps. The tides of the sea often produce very singular effects round this island. In their ordinary course the flood runs east in the Frith, where Bernera lies, and the ebb runs west; the sea-ebbing and flowing regularly for four days before, and as long after the full and change of the moon. The spring tides commonly rise to the height of 14 feet perpendicular, and the others proportionably; but for four days before and after the quarter moons, there is a singular variation; at those times the tide runs eastward for twelve hours successively, from nine o'clock in the morning till nine at night, when the current turns, and runs westward for the twelve following hours. Thus the recurrences continue; one flood and ebb running eastward, and another westward, till within four days of the full and change of the moon, when they refine their ordinary course, running east during the six hours of flood, and west during the six hours of ebb. There is another phenomenon in these tides equally remarkable. Between the vernal and autumnal equinoxes, the tides about the quarter moons run all day to the east, and all night to the west; and during the other six months, their course is reversed, being westward in the day, and eastward in the night. The number of inhabitants in Bernera and the isle of Pabbay, which lies between the former and Harris, was 204 in the year 1792. W. long. 5° 36'. N. lat. 6° 45'. The Rev. Mr. M'Cleod's Account in Sir J. Sinclair's Statistical History of Scotland.—Allo, a town of Scotland, in the county of Inverness, in which are barracks; 32 miles N.W. of Fort William.

BERENCES, a town of Piedmont, in the district of Coni, 43 miles W. N. W. of Coni.

BERNEVILLE, a town of France, in the department of the Strights of Calais, and chief place of a canton, in the district of Arras, 4 miles S. W. of Arras.

BERNEUT BAY, lies at the point of Quiberon, on the coast of France.

BERNEX, a town of Savoy, 44 miles N. E. E. of St. Julien.

BERNARDUS, in Entomology, a species of Cancer, with heart-shaped, mutilated hand claws; that on the right side larger. Habits wheels, &c. common on moss features. See Bernard the Hermit.

BERNHARTS, in Geography, a town of Germany, in the archdiocese of Andern, 7 miles E.S.E. of Feldsburg.

BERNI, or Berna, Francis, in Geography, an Italian poet, was a descendant of a noble and indigent family of Bibiena, in Tuscany, and born at Campcvecchio about the close of the 15th century. He passed the first 15 years of his life in poverty at Florence; and though he was afterwards patronized by cardinal Bernardo of Bibiena, Angelo, and Giberti, bishops of Verona, his love of unrestrained liberty, and inclination to pleasure and rillery, prevented his deriving any permanent advantage from their patronage. At Rome, however, he was greatly esteemed by the literati, and was one of the most illustrious men of the famous academy "De Vignaiouli." At length, he retired to Florence, and published on a canonry in the cathedral, under the protection of cardinal Hippolito de' Medici, and duke Alexander. It had been said, that he was taken off by poison, because in a quarrel between these two princes, he refused to comply with the desire of one of them, who requested him to administer poison to the other. The era of his death, as well as the truth of this story, are uncertain; it has been fixed by some to the year 1576; but others have supposed he lived to a later period. Mr. Roscoe, in his "Life of Lorenzo de' Medici," says, that he cultivated a branch of poetry (a kind of burlesque) with so much success, that it has from him obtained the name of "Beresche." The characteristic of this species of poetry is an extreme simplicity, which the Italians denominate "ideotimo." The most extravagant sentiments, the most feverish strokes of fatire, are expressed in a manner so natural and easy, that the author himself seems scarcely to be conscious of the effect of his own work. Perhaps the only indication, says Mr. Roscoe, of a similar taste in this country, appears in the writings of the facetious Peter Pindar. Berni, though he seems to have blotted and corrected much, has nevertheless not been sufficiently careful in expunging licentious images, and free equivoca; and his wit is often more buffoonery. One of his principal performances, was the recombination of Boiardo's "Orlando Inamorato," which he has rendered much more pure and poetical. The best edition of it is that of Venice, in 1545. His other poems were collected and published, with those of other burlesque writers, in 1548, in 2 vols. 8vo, and reprinted at London in 1721 and 1724, after the edition of Venice. Berni was a pious fatirist, and the avowed enemy of Peter Areth, whose life he wrote in a strain of bitter invective. He excelled in Latin poetry, and imitated the style of Catullus with success. Gen. Bing.

BERNICA, in British Geography, one of the kingdoms of the Saxons heptarchy. Although the Saxons, soon after the landing of Hengist, had been planted in Northumberland, their progress was slow in overcoming the obdurate resistance with which they were opposed, and none of their princes for a long time assumed the appellation of king. At first, in 547, Ida, a Saxon prince of great valour, who claimed a descent, as did all the other princes of that nation, from Woden, brought over a reinforcement from Germany, in
BERNIN, in Geography, a town in France, in the department of the Here, and chief place of a canton, in the district of Grenoble, 8 miles north of Grenoble.

BERNINI, John Lawrenet, in Biography, a celebrated sculptor and architect, was the son of a sculptor, and born at Naples in 1598. At a very early age, he manifested the inclination of his genius; for upon the removal of his family to Rome, when he had attained only the age of 12 years, he flung himself up from morning till night, in the Vatican, for the purpose of copying the master-pieces which it contained. Having about this period wrought a head in marble, that excited great admiration, he was sent for by pope Paul V. who desired him to sketch with a pen the head of St. Paul, in his presence; upon which the young artist delighted it so well, that the pontiff recommended him to the care of cardinal Maffi Barberini, as one who might become the Michael Angelo of his age. Stimulated by the encouragement he had received, his application was indefatigable, and his perseverance invincible. To this purpose, it is related concerning him, that after having finished with much attention and assiduity a bust of Scipio Borghese, the pope's nephew, he discovered a defect of the marble, in the forehead. Upon this he immediately procured another block, and in the interval of 15 nights he executed another to his satisfaction. When the first was exhibited to Borghese, he could not avoid manifesting his chagrin; but he was agreeably surprized when the second was exposed to his view. Both these are preserved in the villa Borghese. Among the productions of his youth, we may mention his statues of St. Lawrence, and of Aeneas carrying off his father at the siege of Troy; and more particularly his David and Goliath, which have reckoned among his best works. His group of Apollo and Dafnes, cut from a single block of marble, and the second not more than half a foot from the first, executed for cardinal Borghese, at the age of 18 years, has been regarded as the chef d'oeuvre of sculpture. It is said, that when Bernini saw these performances of his youth 40 years afterwards, he lamented the little improvement he had made in sculpture during this long course of years. In the pontificate of Gregory XV. Bernini was created a knight of the order of Chrift; whence he had been commonly distinguished by the appellation of the "Chvalier Bernini."

Upon the accension of his patron Barberini to the pontifical dignity, and the title of Urban VIII. Bernini was engaged in executing the projects which he had formed for the embellishment of Rome. The decoration of the place called the "Conclafam," in St. Peter's, employed him for 9 years, and for this exercise of his art he was liberally rewarded. He also contrived a fountain, displaying the niches of his invention, in the place de l'étoile; he created the great niches of the pillars, which support the dome of St. Peter's; and contrived a grand mandament for the pope, which is one of the most ornaments of that cathedral. So much did the pope intimate himself in the welfare of Bernini, that he implored him to marry; accordingly, in 1639, he commenced a matrimonial union, which lasted 15 years, and produced a numerous family. Bernini's reputation was not confined to Rome; but Charles I. of England, hearing of his fame, sent
over a fine picture of Vandyke, from which he made three busts of the king in different aspects, which gave great satisfaction, and were unanimously rewarded. A bust of the queen was intended, but on account of the troubles which occurred in England, was never executed. Bernini was invited to Paris by Lewis XIII. just before the death of Urban VIII., and allured by very lucrative proposals; but the pope upon being consulted, said, "that he was made for Rome, and Rome for him," and this determined his stay. The grand fountain of the piazza Navona, constructed under the pontificate of Innocent X., is reckoned among his master-pieces. The fine portrait of St. Peter's was erected by this artist, under the pontificate of Alexander VII. and about this time queen Christina visited Rome, and treated him with singular respect. In 1664, he was consulted by Lewis XIV. of France, in consequence of the recommendation of Colbert, concerning the improvement of the Louvre, and at the age of 68 years yielded to an urgent invitation to visit Paris for this purpose. In his journey thither, he was honoured in various places through which he passed, by the most respectful attention; and after his arrival, he began with making a bust of the king, and while he was sketching his portrait, turned back his eyes for a better discovery of his forehead, observing at the same time, with the politeness of a courtier, "that he was a king who might freely throw his face to the whole world." This, it is said, gave rise to a French fable, that the emperor "visit a la Bernini." His design for the completion of the Louvre was not executed. He returned to Rome before winter, and as an acknowledgment of his obligations, for the civility and munificence with which he was treated by Lewis, formed a colossal equestrian statue, representing the king as supported by a rock. Upon its removal to Paris, Girardon changed it, on account of its want of sufficient resemblance to the monarch, into a Curtius leaping into the fiery gulf. Among the remaining works in which he employed himself, the most considerable was the tomb of Alexander VII. in St. Peter's. Whilft he was repairing the old chancellery palace, by order of Innocent XI. he was seized with a fever, which terminated in an apoplexy, that closed his life in 1680, in the 82d year of his age. His funeral procession to the church of St. Maria Maggiore was attended by all the nobility of Rome.

The genius of Bernini was singularly fertile and comprehensive; and on a medal struck in honour of him by Lewis XIV. he is characterized as "singularis in linguis, in omnibus minibus," i.e. singular in each, in all. Several of his pictures, painted for his amusement, amid his other occupations, and sufficiently indicating his talents in this department of the arts, are preserved in the Florentine gallery, and the Barberini and Chigi palaces. In architecture he displayed a fine taste and rich imagination, though he is said to have departed from the rules and proportions observed by the ancients. But he owed his highest and most distinguishing reputation to sculpture. D'Argenville, however, observes, in his "Vies des Architectes et des Sculpteurs," that, whilst he wrought marble with a surprising suppleness, admirable taste, and singular grace, he often deviated from truth, and was much of a mannerist; that he abandoned the simple drapery of the Grecian statuaries; and that he enveloped his figures with such an enfeillement of folds and drapings as to disguise and partly conceal them by the flatter and feeming agitation of their draps. Some of his single busts, or portraits after nature, are much admired, and are said to retain the whole spirit and character of the original. His St. Theophila in ecstasy is thought to surpass all his other works for expression. His own talents he estimated with modesty; but by an enthusiastic attachment to his art, and unwearied fidelity in the exercise of it, he arrived at that eminence for which he was distinguished, and multiplied his works to such a degree as to occasion its being said, that posterity would be apt to suppose as many Berninis as Hercules. "Eloquence. Beaums Arts, i. ii. p. 1. p. 282. Gen. Biog.

BERNINO, in Geography, a mountain of Switzerland, being a branch of the Rhaetian Alps, about 26 miles N. E. of Chiavenna.

BERNO, in Biography, abbot of Richenon, in the diocese of Constance, flourished about the year 1008, and is celebrated as a poet, rhetorician, musician, philosopher, and divine. Of his works, the principal are his treatises "De Instrumentis Muficalibus;" "De Mundura Monochordio;" and "De Mufica feu Tonis," containing a summary of the doctrines of Boethius, an explanation of the ecclesiastical tones, intermixed with pious exhortations, and the application of the muse to religious purposes. His learning and piety recommended him to the special favour of the emperor Henry II. and his endeavours to promote literature were so much encouraged, that his abbey of Richenon was as famous in his time as those of St. Gall, or Cluny, then the most celebrated in France. He died in 1049, and was buried in the church of his monastery.

BERNON, in Geography, a town of France, in the department of the Aube, and chief place of a canton, in the district of Erivy; 4 miles S.E. of Erivy.

BERNOULLI, James, in Biography, a celebrated mathematician, was born at Basel, December 27, 1654. His father, who was a man of rank and learning, intended him for the profession of a minifter, and paid great attention to his education. Having passed through the usual course of preparatory studies, and taken his degrees in the university of Basel, he applied, in deference to his father's wishes, to divinity; but his inclination leading him to mathematics, he made great proficiency in geometry, without any collateral assistance either of teachers or of books, from the use of which his father rigorously restrained him. In reference to this restraint, he took for his device Phaeton driving the chariot of the sun, with this motto, "Iuvvo patre lidera verfe," i.e. I traverse the stars against my father's inclination. Notwithstanding the disadvantages under which he laboured, he made such progress in mathematical studies, that he was able, before the age of 18 years, to solve a difficult problem in chronology, or to find the year of the Julian period, when the year of the cycle of the sun, the golden number, and the indiction, are given. In 1676, he began his travels, and at Geneva taught a blind girl to write; and at Bourdeaux composed universal gnomonic tables. Upon his return to his own country, in 1680, he derived great pleasure from the perusal of Malbranche's "Search after Truth," and Descartes's philosophy; and predicted the return of a comet, of which he gave an account, in a short treatise written in his own language. He soon afterwards travelled into Holland, Flanders, and England; and having completed his peregrinations, he settled at Basel in 1682, and commenced a course of public experiments in natural philosophy and mathematics. In this year he published, at Amsterdam, in Latin, his "Essay of a New System of Comets," in order to calculate their Motions and to foretell their Appearance; and the following year, at the same place, his "Discourses upon the Weight of the Air;" Lat. 8vo. In 1684, he accepted the professorship of mathematics at Heidelberg, and devoting himself to the laborious study of these sciences, he took occasion about this time to investigate the analytical system of Leibnitz, contained in some essays on the "Calculus differentialis," or "Infinimus petitis," published in the "Acta Eruditorum," the extent and beauty
BERNOUILLI, which was offered him in 1692, he undertook, in 1695, a course of philosophical experiments at Groningen, and was furnished by the curators of the university with the necessary apparatus. The next time he discovered, what has been called the momental phenomenon, occasional, as it is now known, by the friction of mercury against glass, in a partial vacuum; for which Frederic I, king of Prussia, honoured him with a gold medal, and with the rank of member of the academy of sciences at Berlin. He was also a member of the royal society of London, and of other learned bodies. He succeeded his brother James at Basel, in 1705, on which occasion he delivered a discourse, "De Fatis Novae Analyseos, et Geometria Sublimatis," and continued till his death in this situation, though he was solicited to remove to Leyden, Padua, and Groningen. He collected his works in 1743, and printed them at Lausanne, in 4 vols. 4to. His correspondence was extensive, and he was much engaged in a controversy with the English mathematicians concerning the invention of fluxions; in another with Renou, concerning the manoeuvring of ships; and in another on mathematical subjects, with Jurin, Brook Taylor, Keil, Pemberton, and Riccati. In 1726, he gained a prize of the academy of sciences for a memoir on the elliptic figure of the planets, and the motion of their aphelia; and in 1734, he received the half prize, jointly with his son Daniel, from the same academy, for a memoir on the physical cause of the inclination of the planetary orbits. Bernouilli died January 1, 1748, in the 81st year of his age, and left four daughters and five sons, three of whom were mathematicians. Fontenelle's Eloge. More. 

BERNOUILLI, JOHN, son of the preceding, was born at Basel, January 17, 1675, and died at Peterborough, July 26, 1726. He was licentiate of law, professor of law at Bern; afterwards professor of mathematics at Peterborough, and member of the institute of Bologna.

BERNOUILLI, NICHOLAS, nephew of the two preceding, professor of mathematics at Padua, afterwards of logic, and then of law at Basel, member of the academy of sciences and belles lettres at Berlin, and also of the royal society of London, and of the institute at Bologna, was born at Basel, October 15, 1687, and died there, November 29, 1759.

BERNOUILLI, DANIEL, M.D. son of John Bernouilli, was born at Groningen, Feb. 9, 1700. Preferring mathematics to commercial pursuits, he pushed the earlier part of his life in Italy, and at the age of 24, declined the presidency of an academy about to be established at Genoa, and in the following year accepted an invitation to Peterborough, where he spent several years. On his return to Basel, in 1733, he was successively professor of anatomy and botany, and of natural and experimental philosophy; and had the honour of being a member of the academies of Peterburgh, Paris, and Berlin, and of the royal society of London. In 1744, he published his "Exercitationes Mathematicas," and, in 1748, his "Hydrodynamica." Many other pieces have been published in the memoirs of the academy of sciences at Paris, and in those of other foreign states. He gained and divided ten prizes from the Parian academy; and on the division of the prize respecting the inclination of the planetary orbit, he father expressed dissatisfaction; more especially as Daniel had enshrined the Newtonian philosophy in preference to that of Descartes, to which he had still maintained his attachment as long as he lived. In 1749, he divided the prize on the tide with Euler and Machamer. At Basel he was much respected, not only as a man of distinguished talents, but for his simple and modest manners. Although he paid external respect to the religion of his country, he was charged by his pupils with a excessive freedom of opinions.
which he incautiously divulged. At the age of 80, he retained his mental powers in their full vigour; but from this time they began to decay. He died March 17, 1782. Nova Acta Acad. Scient. Impr. Petropol. vol. x.

BERNOUILLI, John, L. L. D. brother of the preceding, was born at Basel, May 18, 1710, and died there, July 17, 1790. He was professor of eloquence, and afterwards of mathematics at Basel, and member of the academies of Paris and Berlin.

BERNOUILLI, James, licentiate of law, member of the physical society at Basel, and correspondent of the royal academy of sciences at Turin, was the son of John Bernouilli. He was born at Basel, October 17, 1759. His natural talents, for which he was distinguished at an early period, were improved by long assiduous application. On his return from Neuchatel, whither he went to study the French language, he was admitted to the degree of master of arts, and devoted himself to the study of the law. In 1780, he made the tour of several cantons of Switzerland, of which an account was published in the third volume of the collection of travels, published at Berlin by John Bernouilli. The study of the law, however, did not divert his hereditary inclination for the mathematics; and in these sciences he made such rapid progress, that in 1789, he was thought qualified to supply the place of his uncle, whole age and infirmities rendered him incapable of continuing his lectures on experimental philosophy, though he did not succeed him in the vacant chair of professor after his death. He had also experienced a similar disappointment in his views with regard to the chair of eloquence in 1780; on which occasion he published his Theses on the sublime. After these disappointments, he determined to indulge his taste for travelling, and accepted the office of secretary to count de Breuner, minister of the imperial court of Vienna to the republic of Venice. He still retained his attachment to the mathematical sciences, of which he exhibited proofs to the public in the memoirs of the royal academy of sciences and belles lettres at Berlin, and in those of the royal society of Turin; and as he wished to occupy a station in which he might make use of the knowledge he had acquired, he was recommended by his countryman Mr. Fujs to the princes of Daishof; and by her influence he was elected adjunct in the academy at Peterburgh, with a salary of 600 roubles, and the promise of being promoted in the course of a year. Accordingly, he quit Venice in 1786, and removed to Peterburgh. Here he applied with unintermitting activity to physical mathematics, and was soon honoured with the title of ordinary academican. In the interval of about 2 years, he prefented eight memoirs, which were inserted in the first volumes of the "Nova Acta Academia Scientiarum Imperialis Petropolitanae," which display singular acuteness in analytical calculations. In 1788, he was appointed one of the professors, who instructed the imperial corps of noble land cadets, and to the office of teaching algebra to the two first classes he devoted himself with great zeal and affability. In 1789, he married the youngest daughter of Mr. John Albert Euler; but being always of a weak and delicate constitution, he was seized with a fit of the apoplexy whilst he was bathing, on the 3d of July in the same year, which speedily terminated his life, in the 29th year of his age, very much to the regret of those who knew and valued him on account of his scientific talents, and modeft, amiable disposition. Besides a variety of mathematical and philosophical pieces, which were published in the "Nova Acta," &c., "Kozier's Journal," &c., "Mem. de l'Acad. Royale, de Berlin, Ann. 1781;" "Mem. des Corresp. de l'Acad. Royale de Turin, Ann. 1783; 1785;" "Nova Acta Helvetica, tom. ii." and "Leipsic Magaz. &c. Part 1, 1783;" and some distinct treatises; he also translated "Merian's Philosophical Memoirs," from the French into German, 2 vols. Nova Acta Acad. Scient. Imper. Petropol. vol. x.

BERNOVITZKO, in Geography, a town of Russia, in the government of Smolensko; 42 miles northwest of Smolensko.

BERNSTADT, a town of Silefia, in the principality of Ole, on the river Weyda.

BERNSTEIN, a town of Germany, in the circle of Upper Saxony, and new mark of Brandenburg; 4 miles N.E. of Berlinchen.—Allo, a town and castle of Germany, in the circle of Bavaria; 2 miles W.S.W. of Gravenau.

BERNSTORF, John Hartwig Ernest, Count von, in Biography, an eminent statesman, was born at Hanover, May 13, 1712, and possessed distinguished talents, which were cultivated by study at the high school of Tubingen, which he entered in 1727, and by travelling through various parts of Europe, under the learned Keyoller. Upon paying a visit to Denmark, Bernstorff was taken into the service of Christian VI. and employed in affairs of state from the year 1732 till the year 1737. In 1742, he was envoy to the diet of that year, and to the court of the emperor Charles VII. and from the year 1744 to 1750, he was ambassdor to France. In November 1756, he received the chamberlain's key; in June 1764, he was made a knight of the order of Dannebrog; and in October 1749, he was appointed a privy-councillor. After his recall from France, in 1750, he formed an intimacy with the prince of Wales at Hanover, who wished him to employ his talents in his service; but by the death of the prince, in 1751, he was released from his engagements; and upon this event he was immediately introduced into the privy-council, and entered upon the office of minister for foreign affairs, and first secret of the German chancery, and, in 1752, was admitted into the order of the elephant. To Bernstorff were owing the conducting and execution of those beneficial measures which distinguished the reign of Frederick V. Upon a plan suggested by him, was established, in 1753, the hospit at Copenhagen, for the education of poor boys; and he was appointed president and governor of this patriotic and useful institution, to which he gave a donation of 4000 rix-dollars.

In 1754, he adviced the crown to purchase from the East-India company all their policies, privileges, and merchandise; and by this act he promoted the prosperity of the Danish West India islands, which had suffered from the exclusive rights of the company. He also distinguished himself by his activity and zeal in promoting the manufactures of the kingdom, which the king entrusted to his management in 1752, and he thus contributed to increase the population, and to excite a spirit of industry and emulation. He concurred in the designs that were formed for the abolition of slavery in Denmark, by the extinction of communes, and by freeing the farmers from the burthen of personal service. He was also one of the first persons in Denmark who counteracted the general prejudice against inoculation for the small-pox, and who endeavoured to reconcile the people to the practice. Bernstorff was likewise indefatigable in his exertions for promoting the instruction of the poor; and he projected a fund for the encouragement and recompence of meritorious, but poor, schoolmasters; nor was he less solicitous to extend the benefits of education, so as to furnish a supply of competent teachers, for which purpose he proposed to establish a seminary at Altona, in connection with the orphan-house of that city; but adverse circumstances prevented the completion of his design. He also distinguished himself by the protection which he afforded to science, and 10
to men of letters. With this view, having been one of the first who discovered the beauties of the "Mishah," he invited the young author, Klopfcke, who then resided in Switzerland, to Denmark, and for several years entertained him in his own house. By his influence, Oeder was appointed professor of botany; a botanical garden was established, and the professor was sent on a tour through the Danish provinces, the result of which was the "Flora Danica," published at the king's expense. Cranmer, Malest, Schlegel, and Bajazet, were also much indebted to his patronage.

To Bernstorff Denmark owes the establishment of two useful societies; one, the society of the Danish language and the arts, founded in 1765; and the other, the royal agricultural and economical society, established in 1769, of which the count himself was president. To him it was principally owing, that a society of learned men were sent, in 1761, to travel in Arabia and the east, at the king's expense, for the purpose of making useful discoveries. In consequence of the important services which he rendered, in various ways, to his sovereign and the state, he was created, in 1767, a Danish count; and he was the only minister who had the honour of attending the king, in 1768, on his tour to England. After their return, however, the count was obliged to resign all his employments, in January 1770, and the king, in acknowledgment of his past services, settled on him an annual pension of 6,000 rix-dollars. On this occasion he found it necessary to leave a country to which he had devoted the service of 38 years of his life; and, accompanied by his counsellors and Mr. Klopfcke, he repaired, in October 1771, to Hamburg, where he spent the winter. Here he spent his time in local intercourse with his friends, but in the beginning of the year 1772, some rheumatic affections, under which he had laboured for several years, returned with an alarming violence, and terminated in a threatening fever. This fever was succeeded by a fit of apoplexy, which carried him off in a few minutes, on the 18th of February. His remains were interred, without pomp, agreeably to the instructions of his will, at the church of Siebeneichen, on one of his paternal estates. Two medals were afterwards struck in honour of him, by two societies of patriots.

Bernstorff possessed a retentive memory, great penetration, and a sound judgment. Learned and accomplished himself, he was the liberal patron of literature and the arts. He was well acquainted with the Italian, French, and English languages; intimately conversant with the laws of nations in general, and attached to the rights of mankind; well informed in the ancient and modern history of different states; and not unaffected in the concerns of religion and the church. He corresponded with many learned men of different countries, and collected a valuable library of select books. His political views were founded on truth and justice; in his transactions with foreign states he was upright and sincere; and he combined, with a vigilant attention to the privileges of the crown, a constant regard to the rights and liberty of the subject.

**General:**

**BERNSTORFF.** Andrew Peter, Count Von, the nephew of the former, was born at Gartow in Lauenburg, August 20, 1735, and at an early period acquired the knowledge of ancient and modern history, as well as of geography, mathematics, natural history, and the ancient languages. His studies were principally in Copenhagen. Several of his earlier years were spent in travelling through England, Switzerland, France, and Italy. Having occupied, after his return, some subordinate stations, he was made a member of the privy-council in 1760; but soon dismissed along with his uncle. Towards the end of the year 1771, after the fall of Stureeck, he was recalled; and about the close of the following year he obtained the foreign department, and was at the same time appointed minister of state, and director of the German chancery; and he was employed in negociating with Russia the exchange of the Gottorp part of Holstein for Oldenburg and Demerhout. In 1776, he was made a knight of the order of the elephant; and in 1780, during the American war, when an order was issued by the British government for intercepting all vessels belonging to neutral powers, laden with naval stores, and bound to any of the enemy's ports, he had an opportunity of exercising his diplomatic talents; and in a note transmitted by him to the courts of the belligerent powers, the Baltic was declared a mere delusion, and it was further stated, that the king of Denmark had determined not to grant a passage through the Sound to armed ships belonging to the powers at war. It was also added, that the other northern powers had adopted and professed the same system. In a subsequent note transmitted to the three belligerent powers, England, France, and Spain, Bernstorff expressed himself in the following terms: "An independent and neutral power never likes, by others being at war, the rights which it had before that war, since peace exists for it with all the belligerent powers without its having to receive or follow the laws of any of them. It is authorised to carry on trade, contraband excepted, in all places, where it would have a right to do so, if peace existed throughout all Europe, as it actually exists in regard to it." Soon after, Denmark and Russia entered into a treaty for the protection of their trade, to which Sweden, Prussia, and other states acceded; and the result was that league formed against Great Britain, known under the title of the "armied neutrality." Towards the end of the year 1780, Bernstorff resigned all his employments, and retired to his estates in Mecklenburg, where he resided till 1784, when he was recalled, and resumed his diplomatic functions; and to his exertions of these, Denmark owed the preservation of peace, when hostilities broke out between Sweden and Russia, in 1788. In 1791, Bernstorff interposed his mediation when the British ministry were preparing to affix the "Turks against the Russians, to restore and promote tranquility. In consequence of the French revolution, his Danish majesty was invited by the courts of Prussia and Vienna to join in the treaty which had been concluded between them. To this proposal Bernstorff replied, in 1793, with considerable address; and in 1793, when his Britannic majesty's envoy extraordinary at Copenhagen presented a note to that court, in consequence of the plan concerted by the allied powers for blockading the ports of France, Bernstorff returned an answer, which was alluded to by the marquis of Lansdowne in the house of lords, February 17, 1794, in the following terms: "The reply of count Bernstorff to our remonstrances was one of the bold, wise, and most honourable replies I have ever read. It is a state paper, which should be kept as a model by every cabinet of Europe." The conduct of Bernstorff was highly satisfactory to his fellow citizens; various institutions were distinguished by his name; and medals were struck to perpetuate the remembrance of his virtues. At length, he fell a victim to the gout, to which he had been subject for many years, and which baffled all remedies, on the 21st of July, 1797; and his remains were interred with great pomp, and attended by a numerous concourse, who lamented the loss of him, in Frederic's church at Christianshavn.

His figure was agreeable, and his manners engaging, his disposition lively, and his temper natural. In business he was active and indefatigable; in conversation communicative and concise; warm from history, and yet respectful in his behaviour; sparing of pretexts and pomps; and prudently judicious in his counsels.
punctual in performing them; prudent in his plans, and firm and zealous in executing them. His memory was tenacious, his benevolence extensive, his reverence of the Deity unfeigned, and his attachment to the Christian religion unwavering. Gen. Biog.

BERNUS, in Geography, a mountain of European Turkey in Macedonia; 10 miles S.E. of Salomki.

BERNY, a town of France, two leagues south of Paris.

BERALDO, PHILIP, the Elder, in Biography, was born at Bologna in 1453, and at the age of 19, became professor of the belles lettres in his native city. He also read lectures at Parma, Milan, and Paris, and at the latter place, or, as some suppose, Persigia, he held a public school of eloquence. But, recalled by his countrymen, he renewed his logistic labours at Bologna with such reputation, that he had 600 hearers at a time. To the study of polite literature, he added those of philosophy, medicine, and jurisprudence; and he also engaged in public employments assigned to him by his country. His disposition was convivial, and his conduct not exempt from the charge of licentiousness, before his marriage in 1498. By his good humour he escaped or conciliated literary contrels, and maintained an uninterrupted intercourse with the greatest number of learned persons of the age in which he lived. He died in 1505. His commentaries and notes extended to all the Latin writers of eminence, and are more distinguished by their erudition, than their elegant taste and sound criticism. With the more obscure authors of antiquity he was particularly conversant, and he took pleasure in reviving the use of words that were barbarous or obsolete. Besides his commentaries on the "Golden Age of Apleius," printed in 1501, and affording a specimen of his manner, he published a great number of his own orations, letters, poems, and other works, of which a collection was printed at Bardi in 1513. Most of his observations on authors are contained in Gruter's Thesaurus Criticus. Moreri. Gen. Biog.

BERALDO, PHILIP, the Younger, nephew of the former, was a native of Bologna, and professor of belles lettres in the university of that city, and afterwards at the Sapientia in Rome. In 1516, he was appointed librarian of the Vatican by Leo X., but about two years after, before he took regular possession of the office, with its emoluments, he died at the age of about 40 years. His Latin poems, by which he acquired great reputation, are published with those of his uncle, to which they are prefixed, in the first volume of the "Deliciae Poetarum Italorum." A collection of his elegies and epigrams, in 3 books, was published at Rome in 1530. His Latin version of an oration of Iocrates, and notes on the first five books of the Annals of Tacitus, were published by order of Leo X. Now. Digt. Hist.

BEROE, in Entomology, the name assigned by Cramer, to the species of Papilio Europa of Fabricius and Gmelin.

BEROS, in Natural History, the name of a species, Melissa (Filica) in Act. Helm. Beroe with an octagonal body, and very long tentacula, Gronovius. Beroe is also the name under which medusae is found in the edenium cibarium (Mill. and Fabr.) is figured and described in Brown's Hill. Jan.—I. In the tenth edition of his "Systema Naturae," calls it medusa beroe, and in the twelfth, voce (Beroe) ovata, angusti elatia nova.

Beroe, in Mythology, one of the nymphs, who, according to Virgil, was companion to Cyrene, the mother of Arifaeus. Beroe was also the name of the nurse of Semelae. BEREA, BERRHOS, or BEHS, in Ancient Geography, Cerneania, a large and populous city of Macedonia, south-west of Egea or Edeisa, north-west of Pella, and east of Cyrenia, at the foot of mount Bermius. Under the Greek Christians, it became the see of a bishop. This was the city to which Paul and Silas fled from Thessalonic, where they found a synagogue of Jews and proselytes, who were commended for their unprejudiced and impartial investigation of divine truth, and where, in consequence of this disposition, they gained many converts to Christianity. Acts, xvii. The medals of this city are bronze, gold, and silver. —Alfo, a town of Syria, between Antioch and Hierapolis, which some have supposed to be the modern Aleppo, anciently called Chalep. (See Aleppo.) In the collection of Dr. Hunter, there was a bronze medal of this city, with a legend and a dolphin twisted about a trident. At this city there were triune Imperial Greek medals in honour of Trajan, Antoninus, and Adrian.

BEROLHEIM, in Geography, a town of Germany, in the circle of Franconia, and principality of Anspach, seated on the Altmuth, with 2 churches, 5 miles west of Weilhineg. BEROLINENSIS, in Entomology, a species of Cantharis, of a black colour: bale of the antenae, wing-cases yellowish; tip of the last black; legs ferrugineous. Herbst.

BEROLINENSIS, a species of Curculio that inhabits Europe. It is whitish, varied beneath; thorax rufous, black, tides vagnated; on the wing-cases, two undulated black bands. Herbst.

BEROLINENSIS, a species of Cryptoccephalus, (Cricoter) found in the vicinity of Berlin. The head and thorax are scarlet and glossy; wing-cases granulated, black; eyes of the same colour; legs fulvous. Herbst.

BEROSUS, in Biography, a famous ancient historian, was a native of Babylon, and priest of the temple of Belus, and flourished about the time of Alexander. Tatian informs us, that he dedicated his work to Antiochus Theos, the third king after Alexander. While the Macedonians were masters of Babylon, he learned of them the Greek language, and passing from Babylon to Greece, settled in the island of Cos, and there opened a school, in which he taught astronomy, and astrology. From Cos he removed to Athens, where he acquired such reputation by his astrological predictions, that the Athenians erected to him a statue in their gymnasium, with a golden tongue. (Vitruvius, lib. ix. c. 7.)

The ancient cites three books of his history of the Chaldeans of Babylon, of which Josephus, Alexander Polyhistor, and Eusebius, have preserved some fragments, that are useful in forming the series of Babylonian kings. Josephus says, that he agreed with Mofes in his accounts of the deluge, the fall of man, and the ark, in which the restorer of mankind was saved; and adds, that he mentions the descendants of Noah and their respective ages, to Nabalaffar, king of Babylon; and that, relating the actions of that prince, he speaks of the taking and burning of Jerusalem by his son Nebuchadnecor, on which occasion, says he, the Jews were carried captives to Babylon, whence ensued the defection of that city for 70 years, till the time of Cyrus. He is quoted by Pliny, Tatian, Clement of Alexandria, Tertullian, Vitruvius, and Eusebius; whence we may infer, that he was esteemed a writer of authority. In the series he gives us of the ten kings, whom he supposes to have reigned at Babylon before the flood, there are some small variations in the authors who have transcribed that historian. These ten successions exactly answer to the ten generations from the creation to the flood: the first king, by name Olorus or Alones, has been supposed by some to be the same with Adam, by others Nimrod, as Xubruthus, the last in the series, plainly appears to be Noah. Pliny (H. N. l. vi. c. 55. l. vii. c. 34 and 37.) informs us, that his book contained the astronomical observations of 450 years, commencing from the
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Bera of Nabonitar. Ammian, a monk of Viticio, published a work under the name of this historian, full of fables, which obtained some credit among the learned, but was soon recognized to be a forgery. Berosus is said to have had a daughter who uttered predictions like himself; and became the Cumaean Sibyl. Brucker's Hist. Phil. by Endl., vol. i. p. 34. Bryant's Anal. Phys., vol. iii. p. 25. See Fabricius, Bib. Graec. vol. xiv. p. 175.

Berosus, in Ancient Geography, a mountain of the Tauric Chersonesus, south of mount Trachzus. This chain of mountains comprehends, according to M. Ptolomy, the mountains now called "Teuchrus-dagi," the height of the whole peninsula, and those of "Balykharra," and "Cabarta."

BEROTI. See BEROTH.

BEROTH, or Beroth, a city situated on the northern frontier of Padina. Supposed to be the same with "Berotai," one of the cities of Hadadezer, which David took, and in which he found many brah. (2 Sam. viii. 8.) According to some, this was Berotai of Syria, according to others, Berytus of Phoenicia, or the same that is mentioned by Ezekiel (xli. xvii. 16) between Hethalon and Emesa.

BERQUET, in Commerce, a weight of 173 pounds, by which hemp and other goods are sold in Russia.

BERQUIN, Louis de, in Biography, was born in Artois about 1492, and was much esteemed at the court of France, where he obtained the title of king's commissary. Although he does not appear to have left the Catholic church, or joined the Lutherans, he followed the example of Erasmus, in declaring against the ignorance and superstition of the clergy. Having incurred the charge of heresy by his publications, which were chiefly books of Erasmus, and extracts from his works and those of others, with his own notes, he was twice prosecuted; but in the first instance acquitted, and in the second condemned, unless he retract his errors, and gave satisfaction, to be burnt. His spirit was resolute, and he determined against submission; his judges, however, deprived of saving him, suffered the execution of the sentence; and upon the return of Francis I. from Spain, he was set at liberty. But Berquin, though distast from it by Erasmus, publicly accused his enemies, Noël, Bédard, and others, of idolatry; and upon a third prosecution, he was sentenced to make a public recantation, and to suffer perpetual imprisonment. Refusing to acquiesce in this sentence, because it implied an acknowledgment on his part, that his sentiments were erroneous, he was condemned as an obstinate heretic, and accordingly dragged on the Greve, a public place near the Seine, appropriated to bonfires and the execution of criminals, and afterwards burnt. He suffered death with great constancy in April 1529; and though the monk who attended him announced that he discovered some signs of abatement at the stake, Erasmus attributes the satisfaction to the fraud and falsehood usually practiced on such occasions. Berquin was a person of great abilities, invincible fortitude, and incorruptible character. Gen. Dict. Jortin's Life of Erasmus, vol. ii. p. 470-478.

BERRA. See BIRIA.

BERRE, in Geography, a town of France, is the department of the month of the Rhone and chief place of a canton, in the district of Arles, situated at the mouth of a river, running into the lake of Martigues, called "the lake of Berre," in an unexcelled climate. It was formerly one of the strongest towns of Provence. It was taken after a long siege, in 1571, by Charles, Duke of Savoy, during the wars of the League; and even the seat of the province was transferred to him. IV., he could not drive the 5,000 yards from Berre, till it was given up in 1578, in consequence of the peace of Vercelli; 41 leagues S.W. of Arles. The population of the town is estimated at 8,000, and of the canton at 67,697 persons. The territory comprehends 257,332 hectares, and is divided into 66 communes.

BERREA, in Ancient Geography, Brea, a town of Bulgaria, 10 or 12 leagues from Philippopolis, upon the river Braea.

BERRETINI, Peter, commonly called Pietro da Cortona, in Biography, an eminent painter of history and landscape, was born at Cortona, in Tuscany, in 1596; and acquired the first rudiments of his art under Andrea Commodi, and Baccio Ciarpi. At Rome, whither he went in his youth, he studied the antiques, in the works of Raphael, Bono-nari, and Polidoro, with such diligence, that he attained to great excellence as an artist. At this early period, he was patronized and employed by the marquis Sacchetti; and in his palace, he painted the "rape of the Sabines," and the "battle of Alexander," which were much admired for invention, disposition, elevation of thought, and an excellent tone of colour, and deemed to be equal to the performances of the best masters. His fame was completely established at Rome, by the fable of the Barberini palace, and by several works in the Vatican, and in some of the principal churches of the city. For further improvement, he travelled through Lombardy and Venice; and returning by way of Florence, he was employed by the grand duke Ferdinand II. in decorating some rooms in the Pitti palace, with pictures of virtuous and heroic actions from ancient history. At Rome, where he afterwards resided, he adorned the gallery of the palace of Innocent X. on the piazza Navona, with various subjects from the Aeneid; and as an architect, in which profession he excelled, he gave designs for a number of churches, palaces, chapels, and monuments. To the church of St. Martin, which was of his own construction, he left a large fum for the creation of a grand altar-piece of bronze, and of his own manufacture. Pope Alexander VII. was so well satisfied with the portico he built for the church of Peace, that he made him a knight of the golden spur, and gave him a rich crown, appendant to a gold chain. In his more affluent and more humble condition, Berretini displayed the same equanimity, and uniformly maintained a respectable character. The gout, to which he was subject, disabled him, towards the close of life, from undertaking any great works, and at length confined him to his bed. He died at Rome in 1668. "As an artist, his character was richness of invention, with grace, beauty, and facility of execution. His dispositions are fine, his management of lights good, and his ornaments and back-grounds charming; but his drawing is incorrect, his figures defective in expression, and too much alike. His fresco paintings were uncommonly brilliant and clear. He succeeded better in great compositions than in small. An Italian writer has said of him, that "he had fire in his colours, vehemence in his hands, and fury in his pencil." Besides his capital works in the palazzo Sacchetti, the Barberini palace, and the palazzo Pitti at Florence, there is, in the palace of the king of Sardinia at Turin, a small sketch representing the "Annunciation of the Virgin," which is touched with exquisite skill and spirit, and in the palace of the prince della Torre, at Naples, there is an incomparable picture of the "Flight into Egypt." The design is correct; the heads are wonderfully great full; the composition is extremely fine, and the colouring is excellent. Many of his works have been engraved by the best artists. D'Angiviller's Vie des Peintres. Pollarion.

BERRETTONI, Niccolò, a first-rate painter, was born at Macerata in 1617, and under Carlo Maroni, who discipled him. He studied design and colour for some years, and became so distinguished as a painter, that he was the judicious
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jealousy and envy even of his master. His early works, after he quit school of Maratti, were in the style and taste of Guido; a circumstance which, of itself, highly recommends them. He died in 1682. Pilington.

BERRICA, in Ancient Geography. See Beroea.

BERRINOM, a town of Thrace, between Nicopolis of Mecia, and Philippopolis of Thrace. Ammianus Marcellinus speaks of it as a large city.

BERRIMAN, William, in Biographie, a learned English divine, was born in London in 1608, and from Merchant Taylors' school was removed, at the age of 18, to Oriel college, Oxford, where he professed his studies with great affluency and success. With a view to the critical examination of the Scriptures, he combined with skill, in the Greek tongue, the study of the Hebrew, together with the Chaldee, Syriac, and Arabic; and in explaining the sacred writings, he had recourse to the rules of grammar, criticism, logic, and the analogy of faith. The articles of doctrine and discipline, which he deduced from the scriptures, he traced through the primitive church, and confirmed by the evidence of the fathers, and the decisions of the more generally received councils. After he left the university, where he was graduated M.A. in 1711, he served two churches in London. His first appearance in print, was on occasion of the Trinitarian controversy, in 1719, when he published "A reasonable Review of Mr. Whiston's Account of Primitive Doxologies," which was followed in the same year by "A Second Review." The performances recommended him to the patronage of Dr. Robinson, bishop of London, who, besides conferring upon him a living in the city, and appointing him his chaplain, left him at his death the fifth part of his large and valuable library. In 1722, he accumulated, at Oxford, the degrees of bachelor and doctor in divinity. In the years 1723 and 1724, he was appointed to preach lady Mower's lecture in defence of the commonly received doctrine of the Trinity, and his eight sermons, delivered on this occasion, were published, in 1725, under the title of "An Historical Account of the Trinitarian Controversy." In consequence of this service, he was elected, in 1727, a fellow of Eton college. His "Historical Account" contained some observations relating to miracles, and drew upon him the animadversions of Dr. Conyers Middleton; in answer to which, he published, in 1731, "A Defence of some Passages in the Historical Account." By his "Brief Remarks on Mr. Chandler's Introduction to the History of the Inquisition," printed in 1733, and followed by a "Review of the Remarks," he incurred the charge of favouring the principles of intolerance, and in this controversy he incurred the severe frittures of that acute and learned nonconformist. His next publication was his course of sermons at Boyle's lecture, preached in the years 1730, 1731, and 1732, and given to the world in 2 vols. 8vo, in 1733. In this work he expatiates the evidence of our religion from the O. T., and the ancient prophecies; and points out the historical chain and connection of these prophecies. In the preface, he affirms the authority of Moses, as an inspired historian and lawgiver. Besides the writings already enumerated, Dr. Bertram printed a number of occasional sermons. He departed this life at his house in London, on the 5th of February 1750-51, in the 62d year of his age, and in his funeral sermon, preached by Mr. Ridley, a great character is given of him, both as a minister of his parish, and as a private Christian. His piety was unaffected and sincere; and his benevolence extensive. In the year of his decease, two volumes of his sermons were published in 8vo., under the title of "Christian Doctrines and Duties explained and recommended," and in 1763, 19 sermons appeared in one volume, under the same title. "With respect to Dr. Bertram's practical discourses, it is allowed that they are grave, weighty, and useful, and well fitted to promote pious and virtuous dispositions; but when he treats on the powers, rights, and dignity of the priesthood, or on doctrines which have been greatly disputed, different opinions will be formed, according to the different sentiments of his readers." Biog. Brit.

BERRINGEN, in Geography, a town of France, in the department of the Lower Meuse, and chief place of a canton, in the district of Hacq. The place contains 646, and the canton 16,760 inhabitants; the territory includes 232, kilometres and 9 commun. BERRY, Basset, a grain, fruit, or seed, produced by several herbs, trees, and shrubs, hence called "haccifers," for the conservation and reproduction of their kind. Some define berries as a fruit smaller than apples, growing in bunches, not so thick or close as grapes. Others, a flat, flabby, succulent fruit, having stones or kernels within them. Such are the fruits of laurels, olives, currants, and the like. The berry, or baccia, in a strict sense, denotes a pulpy perecardium without valves, in which the seeds are naked. See Bacca.

Berries are of various sizes, forms, properties, and uses, according to the plants whereon they grow. Some are used in medicine, as juniper-berries, buckthorn-berries, &c. Others in dyeing, as French or yellow berries, &c. The yellow berry-wash may thus be prepared: take a pound of the French berries, and put them to a gallon of water, with half an ounce of alum; boil them an hour in a pewter vessel, and filter off the fluid; put them again into the boiler, and evaporate the fluid till the colour appear of the required strength.

BERRY-Bearing Alder. See Rhamnus Frangula.

BERRY, Ayignon. See Avignon.

BERRY, All. See Ale.

BERRY, in Geography, a province of France, before the revolution, now comprehended under the departments of Indre and Cher, of which Bourges was the capital; bounded on the north by Orleanois, on the south by Bourbounois and Marche, on the east by Nivernois, and on the west by Poitou. Berry was divided into the Upper and the Lower, and extended about 90 miles from north to south, and 73 from east to west; it is watered by several rivers, as the Loire, Creuse, Cher, Indre, &c. enjoys a temperate air; is fertile in corn, fruit, wine, hemp, flax, and paturage; and contains several fine quarries, and some mines of silver, iron, and ochre. Besides the trade in wine, carried on at Bourges, the principal commerce of this province consists in fat cattle sent to Paris, and the great number of sheep, which produce fine wool, manufactured in this and other parts of the kingdom. In Berry there are two kinds of manufactures; one for clothes and ferges, and the other for hats and wave stockings. Berry Horne, lies about a mile south of the entrance into Doremgel haven, on the west coast of Ireland, and 5 miles N.N.E. from the haven of Ballyhannan.

BERRY HEAD, a noted promontory on the south coast of Devon, being the south-west limit of Torbay, and running far out south into the sea. Off this head, out of the way of the entrance into the bay, is a rock, called Berry-rock.

BERRY'S ISLANDS, a small cluster of islands on the north-west point of the great Bahamas bank, in the channel of Providence. N. lat. 25° 30'. W. long. 75° 40'.

BERSABA, in Ancient Geography. See Beer-Sheba.

BERSABORA, a large, strong, and populous town of Peru.

BERSARRI, in Writers of the Middle Age, a kind of hunters, or sportmen, who pursued wild beasts in forests and chases. The word farms derived from the barbarous Latin bersfur,
Berschitz, or Berschesiz, in Geography, a little town of Carnola, seated on a high rock near the Adriatic sea, and containing a small harbour. In this place is produced a thick and sweet wine, of a black red colour.

Bersello, or Brissello, a town of Italy, in the vicinity of Modena, seated on the Po. It was taken by the imperial troops under prince Eugene in 1702, and by the French under the duke of Vendome in the following year. The emperor Otho died here, after his defeat by the army of Vitellius. The town is small, but fortified; 27 miles north-west of Modena. N. lat. 44 55'. E. long. 10° 43'.

Bersheek, a mountain of Peru, on the north-west side of the lake of Zura, noted for a fire-temple, the resort of the Quechus.

Bersima, in Ancient Geography, a town of Aflia, in Mecopetamus, seated on the left bank of the Euphrates, south-west of Nerciphorum.

Berskoi, in Geography, a town of Siberia, 20 miles north-east of Polivan.

Berstadt, a small town of Moravia, in the circle of Olmutz.

Bert. See Brit.

Bertaunt, John, in Biography, an early French poet of reputation, was born either at Creys, or at Combe, in Porche, in 1553; and being known at court by his wit, was appointed first amanuensis to Catherine de Medici, private secretary and reader to Henry III., and was much esteemed by Henry IV., in whose conversion he was eminently instrumental. In 1594, he was made abbot of Aubin, and, in 1596, Bishop of Sées. After his advancement to this see, he conducted in reprehensible, though force blanche attached to him, because, in lieu of suppressing the free poems of his youth, he published them with the plain styles of his advanced age. He died in 1611. As poet, he has tried to have been more natural and clear than Ronsard, more facile than Defortes, and more genial and polished than either of his contemporaries. Some of his Poems are said to form the chief and elegance of a more refined period. He died in Paris, where he was buried, having left behind him a son and two daughters.

Bertie, in Biography, a maritime county of America, in New England; and Edenton district, having for its southern boundary the Roanoke, and on the east Albemarle Sound. In this county is situated the ancient Indian tower of the Wero. It contains 1,262.6 square miles, of which 374.1 is water.


Bertius, or Coel., turbinate, five-toothed. Cor. tube short, with a villous mouth; berry globiferous, inferior, two-celled, many-seeded.

Species,
Species, t. B. guianensis. Aublet. Guian. 180. t. 69. This is a shrub six or seven feet high, and the thicknefs of the human arm; branches opposite, knotty, tomentose; leaves opposite, ovate, acuminate, and tomentose beneath; petals short, convex beneath, channelled above; stipules leaf-clipping, two-lobed; flowers in terminating racemes; corolla white. Found by Aublet in the wood of Arouca, in Guiana, flowering and fruiting in the month of June.

BERTIN, Nicholas, in Biography, an historical painter, was born at Paris in 1667; and after Studying under some of the principal artists, and gaining, at the age of 18 years, the prize of merit in the academy, was sent to Rome for further improvement, where he acquired a great taste for composition, and in Lombardy he completed his knowledge of colouring. Some time after his return to Paris, he was made academician in 1703, and professor in 1705. His drawing was correct; his invention ready in all sorts of subjects; and he painted in a strong, pleasing, and finished style. He was much employed by Louis XIV.; and his performances were valued and sought after by foreigners. He excelled more in small works than great ones; and from this circumstance, and some others, he was referred only to the second rank of artists. Among his most considerable performances we may reckon the ceiling at the chateau of Pleiss-St. Pierre, the subject of which was the adoration of the Magi, and an historical composition, representing the baptism of the eunuch of the queen of Candace, by St. Philip. His temper was reserved, and he was much addicted to religion. He died at Paris in 1736.

BERTIN, Joseph, Expuru, was born at Tremblay, in the department of Renne, June 28th, 1712. Having gone through the usual course of study, in anatomy, physiology, and therapeutics, he was created doctor in medicine at Paris, in 1740. The following year he published "Non datur imaginationis materne in factum actio," combating an opinion, which had long prevailed, that the imagination of the mother had the power of marking and disfiguring the fetus in utero. His next production, which is much commended by Haller, is a treatise on "Osteology," in 4 vols. 12mo. The bones of the head are described more exactly and minutely, Haller says, than in any other work extant. About the same time, he had a long, but not very interesting dispute, with M. Ferrein, on the formation of the voice. In the year 1764, he joined Meins, Le Bas, Petit, and others, in defending the cause of Madame Renne, who had been delivered of a male child ten months and twenty days after the decease of her husband, and who wished to get the child acknowledged as his. Bertin, with his condutors, endeavoured to establish as a principle, that there is no fixed term for the birth of the child, and that, according as the constitution of the parents was more or less vigorous, a greater or less portion of time might be required for the perfection of the fetus. A child might be ripe, and fit for the birth, they maintained, at the end of the seventh month, if the parties enjoyed great strength of constitution; or in an opposite state of them, it might require ten, twelve, or more months, to fit it for expiration. This doctrine was attempted to be established by recurring to a great number of cases and observations, and to the decisions of the courts, of which they produced several, legitimate children, supposed to have been born in the eleventh or twelfth month after conception. Recourse was also had to the histories of monstrous births, to show the aberrations of nature. These arguments and cafes were ably and judiciously opposed by M. Louis. The cases adduced by his antagonists were shewn to be defective in evidence, and though he admitted that the time of gestation in women, as well as in animals, might be prolonged for a few days, yet he much doubted whether, in any influence, it had been extended to the end of the tenth month, or at the most to more than two or three days beyond that term. In support of this opinion, he cited the authority of some of the ablest philosophers, physicians, and lawyers; and the court, according to this determination, declared the child to be illegitimate. Though the court in this decision were probably influenced by the peculiar circumstances of the case, the husband being 76 years of age at the time of his death, and for the last month in such a state as to be incapable of performing the conjugated rites, yet the arguments and authorities adduced by M. Louis must have had great weight with them. and was deserved to be had recourse to in deciding on general principles, what is the utmost term to which a woman may carry a living child.

BERTIN, Peter, in Biography, an eminent geographer, was born at Beruren, a village in Flanders, in 1565, and acquired the knowledge of the learned languages in England. Having travelled through Germany, and other countries, he settled at Leyden, where he became professor of philosophy; but after occupying this post for 26 years, he was expelled for joining the Arminian party. Upon his expulsion he migrated to Paris, where he abjured the protestant religion in 1620, and was made cosmographer to the king, and professor-royal extraordinary of mathematics. He died in 1629. His principal works are "Theatrum Geographicum Veterum," Amst. 2 vols. fol. 1618, 1619; which is a collection of the works of almost all the ancient geographers, illustrated by notes, and esteemed a valuable publication; "Introducit in universalim Geographicam"; "Comment. Rerum Germanic. lib. in." Amst. 12mo. 1635, containing a good description of Germany, and a map of the empire of Charlemagne; "Noticia Episcopatum Galliae," Par. fol. 1625; "De Aggeribus et Pontibus," Par. 8vo. 1629. The works above enumerated are held in high estimation by geographers. We may add "Illud. Vironum. Epit. select. inferiori faculo scep. vel a Belgis vel ad Belgas," 8vo. 1617. Bertin also wrote several pieces in the controversy between the Gomarists and Arminians, and published discourses on various occasions. Now. Diet. Hist.

BERTON ROAD, in Geography, lies within Dalkey island, at the south point of the entrance into Dublin bay, Ireland.

BERTONA, Bertonia, Bertidea, Berton, or Bertin, properly denotes that part of a country farm where the barns and other inferior offices stand, and wherein the cattle are foddered, and other bullocks is managed. Bertin is also used to signify a farm, as distinct from a manor. Du-Caige. In some parts of the west of England, they call a great farm a bertin, and a small one a living. Hence also bertonarii was anciently used for those we now call farmers, or tenants of bertonarii.

BERTON-
BERTONCOURT, in Geography, a town of France, in the department of the Moëlle, and chief place of a canton, in the district of Bayeux, 10 miles north-east of Bayeux.

BERTRAM, Conradus Bonaventure, in Biogra-

BERTRAND, Gabriel, a surgeon of eminence at Paris, published, in 1616, in 8vo. "A Refutation of the Errors contained in Guillemau's Description of the Muses of the Human Body," which is much commended by Portal; also "Les Verités Anatomiques et Chirurgicales des Organs de la Respiration, et des artifices moyens dont la nature se fera pour la preparation de l'Air," Paris, 1629, 12mo. He had observed performed in the chest to be absorbed and conveyed out of the body by the hair. Bib. Anat.

BERTRAND, John Baptist, born at Antignes, July 12th 1670, was member of the academy at Marib. There, he also practised medicine with reputation and success. He published "An Historical Account of the Plague," which defeated that city in the year 1719, of which he wrote; also "Letters addressed to M. Deidier on the Causes of Muscular Motion," and "Dissertations on the Effects of Sea Air." He died September 10, 1752, aged 82 years. Eloy. Dict. Histoire.

BERTRAND de Comminges, St. in Geography, a town of France, in the department of the Upper Garonne, and chief place of a canton, in the district of St. Gaudens. Before the revolution, it was the see of the bishop of Comminges, 7 miles; 3 miles south-west of St. Gaudens. Its population was at 1639, and that of the canton at 1655 persons. Its territory comprehends 1351 square kilometres, and 18 communes.

BLERANDI, Ambrosius, in Biography, a celebrated architect and surgeon of Turin, where he was born, Oct. 8th 1734. Showing early marks of an uncommon genius and talent for his profession, he was sent by his sovereign to Paris, and afterwards to London, to acquire a knowledge of the improvements making in those places. At London, he was for six months under the direction of Mr. Broomfield, then at the head of his profession. Having employed three years in his travels, in 1755, he returned to Turin, where he preferred to the office of physician an extraordinary, and principal surgeon to the king. In 1748, he published, in 8vo, "Dif-
fertations de l'anatomie, de l'ophtalmie, de l'outrage," which have considerable merit. But his principal work was pub-
lished at Nice in 1763, 8vo, under the title of "Trattato della operazione di chirurgia," in which he has described the manner of performing the principal operations in surgery. The work was translated into French by M. Sabot, and published at Paris, in 1769, with engravings. He died in 1769, in the 43rd year of his age. Hall. Bib. Chap. Eloy. Dict. Hist.

BERTROMONTIER, in Geography, a town of France, in the department of the Vosges, and chief place of a canton, in the canton of St. Dié, 15 miles east of St. Dié.

Boc A. of Africa, in the tenth part of the Vol. IV.

country called "Kisera" by the Arabians, and by us "Caffaria." See Brah.

BERVAN, a town of Asia, in Tartary, in the kingdom of Thibet, near the lake Bervan, which lake is said to be 40 leagues long and between 30 and 34 broad.

BERVIE, or HERBIVIE, a royal burgh in the county of Kincardine, Scotland. N. lat. 56° 44'. W. long. 7° 4'. It is seated on the eastern coast, at the mouth of the river Bervie, called Bervie bay, which forms a small harbour for fishing-boats. This town was constituted a royal burgh in 1542, by charter from king David, who, being at sea, was forced to land here by storms at weather, and kindly received and entertained by the inhabitants. The place where he landed is still called crois David. In 1595, James VI. renewed the charter, with all its former privileges and immunities. This town has lost nearly the whole of its trade and commerce, and many of its houses are fallen to decay. Most of the fishermen who frequented this port are removed to Gourdon, a village about two miles south, where they enjoy a more eligible situation. Fresh water has lately been brought into the town by means of pipes, and a new bridge has been recently thrown across the river Bervie. The population of the borough is about 607 persons.

BERVINE, a river of the Netherlands, which passes by Delft, and runs into the Meuse, near Vlissingen.

BERVISH, in Hebrew, the name by which the Hollanders call the lamp-plant "cyclomorpus lunaumus" of Linnaeus.

BERULLE, Peter d', in Biography, cardinal and founder of the congregation of the fathers of the oratory in France, was born at Serilly near Troyes, in 1575, and educated with a view to the ecclesiastical profession, first among the Jesuits, and afterwards in the university of Paris, where he was distinguished by his proficiency in literature, and by the amiable features of his disposition. Such were his attainments in doctrinal and controversial divinity, that he bore a principal part in the conference at Fountainebleau, in 1600, between cardinal du Perron on behalf of the catholics, and de Poff-}

Morny on the side of the protestants. At this time he was almoner to king Henry IV.; and in 1604, he was employed in bringing over a colony of Cornishmen from Spain, and settling them at Paris; of this order he was constituted superior-general. The first foundations of the congregation of the oratory of Jesus were laid by him in 1611, and from this institution he derived the greatest honour. See Orato-
ry. After the death of Henry IV., Berulle was chief of the council of the queen-mother, Mary of Medici, and he took an active part in promoting conciliatory measures between the contending parties during the minority of Louis XIII. In 1623, he was deputed on a commission to Rome, to solicit a dispensation for the marriage of the princes Henrietta Maria, to Charles I. of England; he was appointed her confessor, and accompanied her to take possession of the throne. But as he was unwillingly maintained her disputed rights, he contributed in some measure to the misfortune that resulted from this impolitic union, and at length incurred the reproach of a dissimulator. The duke of Buckingham, as he says, complained of him to the king of having conspired against his life and fortune. On his return to France, he was active in urging the proceedings against the Calvinists at Rochelle. Having refused several rich benefices and bishoprics, he was nominated cardinal by Urban VIII., without his knowledge, in 1627; but he continued his abstinence and mortified mode of living; and at length, exhausted by his labours and toil, he died during the celebration of mass, Oct. 2d 1629. His numerous pieces in controversial theology were collected and published in two volumes folio, in 1634, and have since appeared in two other editions. Gen. Dict.
BERUS, in Geography, a town of France, in the department of the Moselle, and chief place of a canton, in the district of Sar-Louis, 4 miles S.S.W. of Sar-Louis.

BERUS, in Zoology. Coluber burus is the common European viper. Linnaeus, who, in describing the amphiblia ferentes, conceived it quite sufficient to distinguish all the species of the several genera included in that order, by the number of abdominal feets, or plates on the belly, and the scales on the tail, states them at 146—39. F. N. Suec. Amoen. Acad. &c. The opinion entertained in this respect by that eminent naturalist, we perceive from later observations on the species he describes, was not perfectly correct. This is exemplified for instance in the common viper, in which both the abdominal plates and caudal scales are liable to vary in point of number; one writer speaks of the viper having 148—42, Weigel, &c.; another (Scopoli) mentions 177—68, &c. Notwithstanding therefore the example of Linnaeus to the contrary, we cannot but approve of characters taken rather from the various marks, spots, and other distinct particulars in the general appearance of the species in this order, as Linnaeus has done himself in the reptile tribe. Dr. Shaw seems also to prefer the latter, confounding the number of plates on the belly, and scales on the tail, in a secondary point of view. He thus describes the common viper: Coluber cinctus, maculatus bilobus, vitta dorala dextra dentata repanda. G invasive vipers, with a bilobate spot, and a black flexuous zigzag bend down the back.

Gmelin, in the Syllema Natural, has four varieties of coluber burus; namely, (2) a native of India, in which the spots along the back are roundish and confluent, so as to form almost one continued stripe; those spots near the tail are disposed transversely. In the island of St. Eustache, another variety (3) is also found, of a fulvous colour, with the head variegated, and the neck flecked. (4) This inhabits India, and is distinguished by having the arch of the occiput, or hind head, intercepting a white spot. The fourth fort (5) has an aggregated spot of many parts on the head; and is a native of the Celebes. Figures of all these varieties of coluber burus are to be found in the magnificent work of Seba.

The common viper of Europe and northern Asia is the same that is found in this country. With us, the viper seldom exceeds the length of eighteen inches or two feet. Pennant tells us, there is one sort of the female almost three feet in length, observing at the same time, that the females are usually one third larger than the males. The colour, generally speaking, is of a silvery greyish, or tawny brown, paler or more vivid in different individuals, and sometimes blackish all over; but in all these varieties the spots are nearly the same, the back being marked with a chain or series of rhomboidal spots connected with each other, and forming one continued indented stripe from the head to the extremity of the tail. A series of dark or dull red spots extends likewise along each side of the body; other spots appear again on the belly, which in most specimens is almost entirely black, and finely glossed with purple. The situation of the fangs proves the viper to be one of the poisonous kinds of serpents; they are situated on each side of the fore-part of the upper jaw, and are commonly two in number, with a few smaller ones near them. Petiver describes a black viper, vipera Angelica nigra, which is thought to be nothing more than a dark variety of the common kind, burus. This, however, is not certain, and we should hesitate in admitting it as a variety only, since Linnaeus considered it, from the description which Petiver has given, as the coluber prefacer of his Fauna Sucec. For a further account of coluber burus, see Viper.

BERWICK, NORTH. in Geography, a royal borough of East Lothian, in the county of Haddington, in Scotland. This town is of very remote antiquity, and has been a scene of considerable manufacture and commerce, but is now reduced to poverty, its harbour being in ruins, and a few cargoes of grain are the only exports from its quay. Its original charter was lost or destroyed, and James V. granted it a new one, under which it has since been governed. The parish extends about three miles along the sea-coast, and consists wholly of arable land, except a fine conical hill called North Berwick Law. This rises immediately above the town, and forms a conspicuous landmark to the sailors who navigate the Frith of Forth. The ancient castle of Tantallon stands about two miles from this town, and is elevated on a high rock, three of whose sides are lined by the Surge of the sea, and the fourth guarded by a deep fosse and drawbridge. See Bass. N. lat. 56° 48'. W. long. 1° 45'. The ground, on which the town stands, rises gently from the river, and from its southern aspect, is renderd cheerful by the sun. Its circumference, within the present walls, is about one mile and three quarters, but the circumference of the old walls extended two miles two hundred and eighty-two yards. The town of Berwick is mentioned as a place of strength in the reign of Robert I., one of the last kings of Northumberland, who died in the beginning of the ninth century. It was successively conquered and possessed by the Saxons and Danes, until the Scotch king Gregory, who was contemporary with Alfred the Great, took it by assault. It continued part of the Scotch dominions till about the year 1008, when it was given by Edgar to the earl of Durham, but was again restored to the Scots. During the repeated wars between England and Scotland, this town and its castle were frequendy taken and retaken by the armies of each kingdom, and in each direful conflict suffered materially. In one of these, between Alexander of Scotland and John of England, the greater part was destroyed by the latter, who made it a practice to confine the house every morning in which he had lodged the preceding night. On the 2d of August 1291, the rates of England and Scotland, with Edward I., assembled at Berwick, to settle the claims of Robert Bruce and John Balliol to the Scotch crown, when the latter was appointed on the 17th of the following November. During these reigns Berwick was besieged and conquered by Edward I.; and the conflict was so great, that Matthew of Waltham flatters the loss of the Scots to amount to 60,000 persons. An English parliament was summoned here in 1296, when the Scotch nobility paid homage to king Edward. In the following reign, Robert Bruce collected an army of 30,000 combatants, with which he entirely routed and discomfited Edward II. and his army near Stirling castle. This battle, commencing on Midsummer day, 1314, continued several days, and it is acknowledged by most authors, that the English suffered more in this conflict than in any other since the time of William the Conqueror. It was in this battle that
BERWICK.

that the privy seal was lost; and Edward issued a proclamation from Berwick, informing his subjects of the circumstances. Berwick was afterwards a scene of great rejoicing and rejoicings. The marriage of Jean, sister to Edward III., with David of Scotland, was performed at this place with great pomp and solemnity. In spite of this family alliance, the two kingdoms soon returned to their former hatreds, and Berwick became the seat of many battles and destructive sieges. It was several times afterwards in the possession of each country, and never relinquished by either without a vigorous and obstinate resistance. In the reign of Richard II., of England, and James II., of Scotland, commissioners were appointed by each crown to ascertain the limits of Berwick; and it was agreed, that the ground in dispute should remain unoccupied, unbuilt, and uninhabited. But in 1522, this agreement was annulled by another, which stipulated that the town and country should be "pleased in God's peace, friendship, league, and condescension." In the same year was solemnised the marriage of Margaret, eldest daughter of Henry VII., with James IV., king of Scotland; but this circumstance did not terminate the jealousies and animosities between the two kingdoms, as Edward VI. marched to Berwick with a large force, which was augmented by a fleet of 34 ships, 30 transports, and a galley. Thrice he encamped her; for some time, and were destined to invade Scotland. This monarch, and Mary queen of Scotland, by treaty, made Berwick a county town, and declared it independent of both states. Queen Elizabeth fortified and invested it with a strong and expensive military establishment, consisting of 980 men, whose annual salaries amounted to 12,734l. 195. 2d. All this was abrogated, and the place rendered peaceable by James VI., of Scotland, who was proclaimed at Berwick, in the year 1603, king of England, France, and Ireland. The union of the two kingdoms, in 1707, terminated the long series of hostilities, which had proved so destructive to the commerce, population, and agriculture of the borders, and to this place in particular.

Berwick, though originally a Scots town, was erected into an English borough, at a very early period, and its bail charter was granted by James I.; under which the burghers claim their various privileges, immunities, &c. as well as other large territorial possessions and domains. It has an exempt jurisdiction, and is independent of the adjoining counties of Durham and Northumberland, yet it is not a county in itself. Since the union, it has been partly subject to the English laws, but is locally regulated by its own code. The town is governed by a mayor, recorder, four bailiffs, and an infinite number of aldermen. The fire is annually elected, and receives 100l. during his majority. Two members of parliament are returned from this town, and the number of electors amounts to nearly one thousand, though not more than seven hundred have been known to vote at one election. Several manufactures are established here; the principal of which are for making damask and diaper, fustian, cloth, cotton and muslin, flocking, carpets, felts, hats, boots, shoes, besides several others connected with the shipping. The coaling trade and foreign commerce of Berwick are very considerable, though about sixty years since, only two small vessels of fifty tons each were employed between this place and London. Now about 400 vessels belong to this port, whose principal lading consists of fish, and eggs. The trit are mostly caught in the rivers Tweed, which before fifteensford offer a great revenue to the proprietors, and give employment to about 350 men. The salmon fishing continues from the 1st of January till the 1st of October, during which time above 40,000 kits of these fish, besides a vast quantity of salmon trout, have been sent to London. The latter are often conveyed alive in the holds of the vessels. About 300 boats are employed on the Tweed; and they yearly remove all the salmon water 2500 tons. The article of egges is also a curious and lucrative branch of trade, as they are brought to this town in carriages and packhorses from all parts of the adjoining country, and mostly partake of the same price. From the 1st to the 21st of October 1793, 52,000 pounds of egges were sent hence to London. The salt trade of trade at this port may be obtained from the inhabitants' revenue, which has risen in the last 20 years from 100,000 to 600,000l. a year.

It was the universal practice, till within these few years, to boil all the salmon before it was packed up in the kites; but in 1788, a new mode was adopted, and has continued ever since. This consists in packing it with ice, which being wanted to great quantities, induced the merchants to construct several ice-houses near the town. In the year 1798, the two companies of Berwick had in 7,000 cart loads, which cost them about 450l. There are 32 salmons coops in this town. Four modes of catching salmon are practised here; the sweep, the spill, the bob, and the hanging net. (See Salmon.) Besides the salmon-fishery, the herring and lobster fishery employs several hands. The latter are caught in crevices, which are three feet in length and one and a half in height. These have a hole at each end, where the lobsters are tempted to enter for the enclosed baits.

The Public Buildings are the governor's house, the barracks, the ordnance-house, the main-guard, the town-hall, and the county-town. Among the buildings is an ancient tower, built of stone, and ornamented with several windows. The town hall is a handsome building of three stories, with an ornamental tower, and spire at one end. It was built from the designs of Joseph Doolis, and finished in 1754. Church was built, in 1652, under the direction of Colonel George Fenwick; but it has neither tower nor bells; these are annexed to the town hall. The bridge over the Tweed is constructed with fine hewn stone, and has fifteen spacious arches. It extends 146 feet in length, and 15 in width, and was finished building October 12, 1654, after a period of 24 years 4 months and 4 days, from the commencement.

Here are a charity-school, and six free-schools, also a custom-house and excise-office. Berwick's hill surrounded with fortified walls, which are mounted with 54 guns. It has four principal gates, and has a complete garrison establishment, to which Holy Island is an appendage. Among the antiquities of the town are the remains of its ancient castle, and a pentagonal bell tower near it, a square fort of Magdalen lane field, entrenchments on the top of Hallydown hill, and an old pier called the bishop's pier.

Here is one weekly market on Saturday, and one annual fair; but the corporation has abolished three annual markets, called High markets, for the hiring of servants, and selling of horses, cattle, &c. Fuller's History of Berwick upon-Tweed,Rob. 1709.

BERWICK, or ALBION, a neat town of America, in York county, Pennsylvania, at the bend of Conewango creek, 13 miles by W. by S. of Philadelphia, 23 miles by W. of York, and 26 miles by S. of New York. The town is laid out, and contains about 1000 houses, and a German Lutheran, and Calvinist church. N. lat. 40 54'.

BERWICK, or NEW BERWICK, a small town of Northumberland county, in Pennsylvania, on the north-westerly fork of the catt branch of Susquehanna river, opposite N-cookeck falls and Ncepeock creek, 324 miles north-east from Nor.

K K 2 thumberland
BERWICK, a township of York county, and district of Maine, containing 3894 inhabitants. It has an incorporated academy, and lies on the east side of Salmon Fall river, 7 miles N. W. of York, and 86 E. by N. from Boston.

BERWICKSHIRE, a county of Scotland, famous in the historical annals of Britain for the many desperate battles fought between the English and Scots within its boundaries. This county formerly constituted about half of the earldom of Dunbar or March, and is generally called by the country people *Merse*. It is nominally divided into three districts, respectively called Lauderdale, Lammermuir, and Merse, or Marth. The latter comprehends the most beautiful subdivision, and follows the course of the Tweed, from the foot of the Eildon hills to within a few miles of Berwick.

Lauderdale is the valley which accompanies the river Leader, or Lauder, whose waters are celebrated in Scottish song. Lammermuir comprehends the ridge of hills, which separates this county from east Lothian, and is chiefly appropriated to the feeding of sheep and black cattle. This county is bounded on the north by Haddingtonshire, on the east by the German ocean, on the south by the river Tweed, which divides it from Northumberland in England, and on the west by the counties of Roxburgh, Peebles, and Midlothian. Its length is estimated at 32 miles, and breadth at 17 miles. It is divided into 52 parochial districts, and besides the royal borough of Lauder, has the towns of Greenlaw, Dunse, Coldstream, Coldgingham, Ayton, and Eyemouth, within its limits. The chief rivers of the county are the Tweed, the Leader, the Eye, the Whiteadder, and the Blackadder. The slates of agriculture in this county is highly improved within the last twenty years; and many parts that were then uncultivated, are now included and rendered profitable to the landlord and the husbandman. By way of agricultural pre-eminence, this county is often called the Norfolk of Scotland. Many farms now let at 500l. and 400l. per annum, which at no very distant period were scarcely deserving of notice. This increase of prosperity enables the county to export from the ports of Berwick and Eyemouth "above 80,000 bolls of wheat annually," and nearly the same quantity is conveyed to the markets of Edinburgh, Dalkeith, Haddington, and Dunbar. The minerals of this district hitherto discovered are few, and these not very valuable. Coal is found in small quantities near Eyemouth; freestone is abundant; and rock and shell marl are found in different places. Copper has been obtained in the vicinity of Lauder; and some few years past a mine of the same ore was discovered in the parish of Bonkle. A small quantity of iron ore is found in the parish of Morington. The rocks, which compose the Lammermuir hills, are mostly schistus, with alternate strata of sandstone. At Eyemouth is a rock of Pudding-stone, which is found to contain fragments of porphyry, granite, and limestone. In the parish of Chirnside, is a species of gypsum, which is advantageously used to manure certain lands. Near Dunse is a celebrated mineral spring, which is much resorted to. Its water, somewhat similar to that of Tunbridge Wells, contains iron diffused in fixed air, with a little sea salt and bitter; and its effects prove rather diuretic and corrodant. Among the gentlemen's manors of the county, those of Hinchin, the seat of the Earl of Home, and of Marchmont, the seat of the Earl of Marchmont, are the most considerable; though there are some other handsome mansions. Besides the castle and fortifications of Berwick, there are several others in different parts of the county, particularly at Lauder, Cockburnspath, Home, and Chapel on Berwick. There were also seven nunneries, two hospitals, and one Dominican convent. Among the eminent natives of this county, the following names occur: James Thomson, the poet; John Scott, or Duns Scotus, who was born at Dunse. Of the same place, was John Brown, author of the Brusonian system of physic; Thomas the Rhymner, and sir Thomas Lernmont, is distinguished in the history of metrical romance. The real land-rent of this county is estimated at 118,820l. sterling. Home's Agricultural Report of Berwickshire. Sir John Sinclair's Statistical Account of Scotland. Fuller's History of Berwick.

BERWIN, or BURWYN, a considerable range of mountains, which pales through parts of the counties of Montgomery, Merioneth and Denbigh, in North Wales. The prospect from different spots on the summit of this ridge strikes the mind with awful solemnities. "Nature," says lord Lyttelton (Works, vol. iii. p. 337.), "is in all her majesty there; but it is the majesty of a tyrant frowning over the ruins and desolation of a country. The enormous mountains, or rather rocks, of Merionethshire, inclose us all around. There is not upon those mountains a tree, or shrub, or blade of grass; nor did we see any marks of habitations or culture in the whole place. Between them is a solitude fit for despair to inhabit; whereas all we had seen before in Wales seemed to inspire the meditations of love.

BERW, BERWS, or BERES, was anciently the name of the vill or site of the habitation of a nobleman, or of a dwelling or manor-house, being the chief of a manor; formed of the Saxo "beorg," which denotes a hill or castle; for noblemen's seats were formerly castles, situated on hills, of which there are still some remains. It was anciently taken for a sanctuary. See BERIA.

BERYL, or BERYLL, *βερυλλος*. Aquamarines of Sikelia, Beryl, Germ.; Emerauds, vert blondier, Hauy; jaspe *ferragadae beryllus*, Werner.

The colour of the beryl is a blueish green, passing into mountain apple, or aparagus green, and honey yellow on one side, and light sky blue on the other. It is almost always found crystallized in rectangular six-sided prisms, sometimes truncated on the edges and angles; the sides of the prism are occasionally alternately broad and narrow, and sometimes convex, which gives the whole crystal a cylindrical form. It is not unfrequent for the prisms to have the appearance of having been broken across and imperfectly cemented together. Sometimes, instead of having plane surfaces at their extremities, they are convex or concave, like articulated bivalves. The face of the crystals varies considerably; the smallest being always the longest, in proportion to their diameter; some are of no greater magnitude than a hair, while others have been found a foot long and three or four inches in diameter. The beryl has many points of resemblance with the emerald; and in particular the crystals of both are divisible parallel to the sides and extremities of a regular hexahedral prism, on which account M. Hauy has comprehended them both under one species.

The beryl is externally shining, or little-shining, with a vitreous luster. Its parallel fracture is minute-conchoidal; the crosf fracture is completely conchoidal. It is generally transparent, but sometimes is only semi-transparent or translucent. It is sufficiently hard to scratch quartz, though with some difficulty. Specific gravity of the light blue variety 2.67; of the blueish green 2.75; of the mountain green 2.65.

This mineral appears to have been first analyzed by Vauquelin, and afterwards by Rose and Schaub, with the following results:

Silex,
BER

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Is a common fire the beryl undergoes scarcely any change of colour, but it loses its transparency, and flies to pieces. At a more intense heat it becomes opaque and milk white, but shows no signs of fusion; by the affluence, however, of oxygen gas, it melts without much difficulty. Borax is a perfect flux for it.

The beryl is found in Daouris, upon the borders of China, near Nertshimik, also in the granite ridge between the rivers Onon and Onomboi. It is found in rivers, accompanying rock-cristal, indurated clay, mica, flint, wolfram, and arcanium pyrites. The beryl, when cut and polished, has a considerable luster; but its colour is for the most part indifferent. It is ranked among the gems, but its value is trifling when compared with the ruby, sapphire, topaz, &c. "Haury. Emmengen. Widemann.

**BERYLL, Oriental.** See CORUNDUM.

**BERYLL, Beryllus.** See TOUREMAL.

**BERYLLUS, a species of Cimex (Spinifex).** The species of Cimex, Kryerite, a learned and pious bishop of Bofor, or Bozrah, in Arabia, flourished about the year 235, and taught that Christ had no proper subordination or divinity distinct from that of the father, before his birth of Mary; or that Christ did not exist before Mary, but that a spirit issuing from God himself, and therefore superior to all human souls, as being a portion of the divine nature, was united to him at the time of his birth. Many conferences were held with Beryllus on this opinion, and at last it was so completely refuted by Origen, and so much to the satisfaction of Beryllus himself, that he gave up the cause, and returned into the bosom of the church. The acts of these conferences were beg preserved, and the dialogue between Origen and Beryllus was extant in the time of Jerome. Eusebius also refers to them. *Eccl. Hist.* v. vi. c. 33. Cave's Hift. Lit. vol. i. p. 122. Mohr. *Eccl. Hist.* vol. i. p. 306.

**BERYLLUS, in Entomology, a species of Cimex (Rotundatus), that inhabits India.** It is of the middle size; pale; border of the thorax orange; wing-cases with a ferruginous spot, and marginal black lines. Fabricius.


**BERYUS, BERSIT, Beersheba, or Beraus, a town of Phoenicia, situated about 24 miles south of Byblus. Stephanus Byz. says, that it was so called on account of its waters. Others deduce its name from Berys, as it was sometimes called by the poets, who was a nymph of the ocean, and the nurse of Semel. Bryant supposes it to have been derived from Baris, Barst, or Barbis, the ancient name of the ark, but properly signifying a covenant; and that it was the city of the ark, where the Canaans, or Phoenician deity Baal-Berith had a temple, and where the rites of his worship were performed. This city is not much inferior to Byblus in antiquity, since it is laid to have existed in the time of Cronus. The kings of Egypt had possession of it, but when Alexander the Great subdued this province, it became subject to the kings of Syria, and remained under the successors of this prince till the time of Diodotus, denominated "Tryphon," who entirely destroyed it about 140 years before the Christian era. The Romans, after the conquest of Syria, rebuilt it near the spot where the ancient city had stood. Agrrippa, the grandson of Herod the Great, decorated it at an immense expense with a theatre and amphitheatre, baths, and porticoes, and embellished in magnificent games, mentioned by Josephus in his "Antiquities." It was in this city that Herod the Great, by permission of Augustus, held an assembly which condemned to death his sons Alexander and Aristobulus, under the false accusation of Artaxerxes, their most dangerous brother, for having conspired against the life of their father. Titus, the son of Vespasian, came to Berythus, after the capture of Jerusalem, to celebrate the feast of the birth of his father; according to Josephus "De Bell." Berythus enjoyed the privilege of the "jus Italicum," according to a law of the Digest. Pliny (H. N. i. c. c. 20.) and Josephus (De Bell. Jud.) informs us, that it was a Roman colony. Under the Roman emperors, Berythus was no less famous for the study of the law in the east, than Rome was in the west; and hence it was styled by the emperor Julian the "mother and nurse of the laws." The civil law was taught there in Greek, as it was at Rome in Latin. It is not certainly known by whom the academies were founded; but that it flourished long before the reign of the emperor Diocletian, is manifest from a decree of that prince. According to Heinorcius (Jur. Rom. Hist. p. 351—356), the splanéde of this school may be computed to have lasted from the third to the middle of the sixth century; and its institution has been ascribed to Alexander Severus. From this academy the two famous civilists Doctorides and Aristobulus were called by Julianus, that they, in concurrence with others, might be employed in composing the Digests; and that prince would allow of no other academies, but those of Rome, Berythus, and Constantinople, to explain the laws. This city was overthrown by an earthquake in the 25th year of Julianus, A. D. 551, July 3; and as the schools of Berythus were filled with the rising spirits of the age, many youths were probably left on this fatal occasion, who might have lived to be the sages or guardians of their country. The metals of this city are bronze, gold, and silver. After it became a Roman colony, its medals had a legend, Col. Fin. Ber. i. c. "Colonia felix Berythus," and were struck in honour of Carus, Augustus, Titus, Claudius, and other Roman emperors. For the present state of Berythus, see BAIKOUT. The faburbs are almost as large as the city itself, containing of gardens, with a house for the owner in each; and these, interfiled among the numerous fruit trees, particularly olives and figs, which this fertile soil supports, give the whole a picturesque and beautiful appearance. Latopan velinals, in the farther, anchor near a small point of land, which runs into the sea before the city, and is called "Berythus point." But in the winter they anchor to the north, in a kind of gulf, which is sheltered from the north and west winds by the mountains, and is said to be very fertile. The rape commodity of the country is raw silk, which is carried to Cairo, Damascus, and
and Aleppo, and part of it to Europe. They also fabricated a kind of jars and jugs of earthen ware, which, from the peculiar nature of the clay in the adjacent country, are highly esteemed, and carried to all parts of the coast.


Berytus, a town of Arabia, formerly called Diospolis.

Steph. Byz.

BERZETIN, in Geography, a town of Hungary, in the district of Gomor, not far from the river Széjo, and formerly noted as the residence of many noble families.

BERZETTO, a town and abbey of Italy, in the duchy of Parma.

BERZOWITZ, a town of Hungary, 12 miles N.N.E. of Leutich.

BES, or Bessis, an ancient Roman weight, containing two-thirds of the as, that is, eight uncia. See As.

The bes originally weighed two asses; whence the origin of the word *quadrina as.* Though Scaliger conjectures it to have been formed from *aetas;* *as bellum from dactulum,* or *bonum from duumum.* Bes was also a linear measure of the ancient Romans. Bes was also a measure of capacity. Bes was also used in the measurement of lands, to denote two-thirds of a jugerum, or acre. See Measure.

Bes was also a money of account, and a current coin among the ancient Romans. See Coin, and Money.

BESA, in Ancient Geography, an ancient city of the Thes współ upon the Nile, consecrated to a god of that name, but formed into a new city by Adrian, who built a temple in it in honour of Antinous, and called it *Antinoe,* or *Antinopolis,* which fee.

BESA, in Mythology, a deity belonging to the city of Abydos in the Thes współ, mentioned by Ammianus Marcellinus in his History, lib. xix. The mode of cultulating the oracle of this deity was by writing the subjects of inquiry on sealed hides, which the priests carried into the sanctuary of the god, and to which they brought back the answers. Isaac Caphabon has conjectured, in consequence of a passage occurring in the Bibliotheca of Photius (Cod. 279.), that this deity was adored at *Antinoe,* or *Antinopolis,* which fee.

BESAILLE, or BESAVLY, Fr. denoting the father of the grandfather, in the Common Law, a writ that lies where the great-grandfather or great-grandmother was feigned the day that he or she died, of any lands or tenements in fœt u p i t ; and after his or her death, a stranger entered the fame day upon him or her, and keeps out the heir.

BESA EU, in Geography, a town of Spain, in Catalonia, at the foot of the Pyrenees, erected by pope Benedict VIII. into an archbishopric, but soon after suppressed; 7 leagues from the Mediterranean, and 5 north from Gerona.

BESANTON, a city of France, and before the revolution the see of an archbishop, and capital of Frank被 Compte, now of the department of the Doubs. This city is surrounded by mountains, and seated on the river Doubs, which divides it into the upper and lower town, joined by a handomé bridge. Of the former, nothing remains except the castle, or citadel, which is a long square built on a sharp rock, and commanding the city, which is defended by a wall flanked with eight towers like bastions. The latter has three long and handomé streets, which are adorned with houses built of free stone, and covered with slate; chiefly about the square called "Battan," which is ornamented with a fountain, whose water proceeds from the statue of Bacchus. The metropolitan church is built at the bottom of St. Stephen's hill, and is a handomé structure, with a high tower. In the middle of the choir is the great altar, on which they expound at certain times, relies in silver shrines enarched with gold and jewels. Near the church of Notre Dame is a triumphal arch, erected in honour of the emperor Aurelian, on which are seen several mutilated figures of men and animals. This serves as a gate to the cloister of St. John the Great. The great hospital of the order of St. Éfprit, for foundlings, is a structure worthy of notice. The priory is remarkable for its excellent economy, and the humane attention paid to its unhappy occupants. The town-house is a large edifice with four wings, having in its front the statue of Charles V. in bronze, with a globe in one hand, and a sword in the other. The imperial eagle is raised over a large baflon, and supported by two its beaks. The government of the palace is magnificent; and beyond it is a fountain, adorned with the figure of a naked woman discharging water at her nipples. Under the Romans, this was one of the most magnificent places which they had in Gaul, and many remains of its superb buildings are yet visible. After the death of Julian, it was almost destroyed by the Germans, and a second time by Attila. It afterwards became an imperial city, till the time of Lewis XIV., who, in 1674, made himself master of it, repaired its fortifications, and united it to France. The university of this city is an ancient and celebrated foundation; and in the year 1772 a literary and military society was instituted in this place. It contains 5 parishes; and the number of inhabitants, which was formerly estimated at 40,000, is now supposed to be reduced to 30,000. The canton of north Besançon is divided into 15 districts, and that of south Besançon 16,662 persons. The territorial extent of Besançon comprehends 975 square miles; the former canton includes 3, and the latter 4 communes. N. lat. 47° 13' 45". E. long. 6° 40'.

About 20 miles from Besançon, near the abbey of "Grace Dieu," there is a natural ice-cellar, in a very romantic situation. On the highest part of a mountain, covered with a thick grove of lofty trees, is the opening of the cavern, which resembles by its depth, faid to be above 220 feet, and by the solemn gloom of the surrounding wood, what poets have feigned of the descent into the infernal regions. The cavern itself is 60 feet in length and height, and 40 in breadth; the bottom is covered with ice, of which vail pyramids rise from it, while others appears suspended from the arched roof, with their points opposite to those of the former. Within the cave is a hole or well, always full of water, and never frozen; and, at the entrance, some mould, which seems to have been accidentally thrown there, and adorned with primos and other wild flowers. The ice, which in the cavern appears of a beautiful azure, is, when seen by day-light, remarkably white. From this natural repository, the ice-bats in Besançon are supplied, when the winters are too mild to freeze water in the open air. This cavern has been the subject of repeated investigation, the result of which may be seen in the "Memoirs of the Academy," for 1712 and 1726.

BESANT, or BIZANT, BIZANT, or BYZANT, a fort of coin, frnacd at Byzantium, in the time of the Christian emperors, and well known in England, and indeed all over Europe, for some ages before the Norman conquest. Few coins ever had a longer or more universal currency than these befants or byzantines; having been current from the very beginning to the end of the eastern empire, not only in all its provinces, but also in all those countries which had been provinces of the western empire, and amongst others in Britain. With us gold and silver bezants were received in payments. But though they are frequently mentioned by all the historians of the crusades, they are rarely spoken of by ours. Neither are they named in Domesday book, nor in the public acts of Henry I. or Stephen, nor in the last will of king Henry II. However, some mention is made of them in private deeds and leases, and also in the Exchequer rolls under Henry
Henry II. The gold beast was pure, or twenty-four carats fine; but writers are not generally agreed with respect to its value. Out of the Greek pound of gold, which was the same with our Tower pound, 72 drachmas were coined, each weighing 3 Troy grains, and worth 40 Saxon pennies, 8 Saxon half-galles, and 9 galleys and four-quarter half-pence of our present money. (Henry's Hist. vol. iv. p. 275.) The silver beast, in the 12th century, was rated at two half-galles. (Lestellion's Hist. et Henry II. vol. i. p. 411.)

Hence the gold offered by the king at the altar, or festivals, is still called beast, or bifan. Thirteen beasts, or bifanias, were presented at the masts at the coronation of the kings of France. Henry II. had that number coined on purpose.

BEZANTS, in Herodotus. See BEZANTS.

BEZARABA, in Geography, a town of European Turkey, in the province of Bulgaria, 48 miles north of Ternov.

BECICUS, in Ancient Geography, a small island of the Propontis, now the sea of Marmora, situated between Cyzicus and the mouth of the Rhyndacus. This, according to Phylly (N. H. i. ii. c. 8), is one of those islands which, being frill joined to the continent, were separated from it by the violence of the sea, or by earthquakes.

BESBOROUGH, in A. Geography, an island in Norton sound, on the west coast of North America. N. lat. 64° 10'. W. long. 141° 15'.

BESBRE, a river of France, in Nivernois.

BESERG HENRU, a town of Asiatic Turkey, in the province of Carasmania; 24 miles north of Askhia.

BESHARRAI, a village of Syria, situated among the mountains in the pachalie of Tripoli, on the road to the Cedars, and distant from them 4 leagues, which is frequented by the Europeans, and where the missionaries have a house. During the winter, many of the inhabitants keep their houes under the snow, with some persons to guard them, and remove to the sea-coast.

BESHTZK, or BESZTK, a district in the government of Tver in the Russian empire, situated on the Maloga. N. lat. 58° 25'. E. long. 42° 25'.

BESFEGER, or BESFEGER, in the Military Art, a place that has been a stage to a fortified place, and those who defended it. See Stage.

BESHEIM, in Geography. See BESSHEIM.

BESILLU, in Ancient Geography, a river of Spain, in Biscay.

BESISTAM, or BESISTAM, a term given to the places of Castile and Lepe. Adena, and some other terms of the dominions of the Grand Seignior, where the Turks have their stations, and expose their goods: 8. A post is often between each of these stations and villages. These huts or races are commonly large, galleried, and covered, with white grasses and thyme ever green. The doors are small, and for convenience are placed on the side of the race, for each room to be entered through the door. See Race.

BESLER, or BESSLER, in Botany, born at Nuremberg, Sept. 29th, 1663, and created doctor in medicine at Augsburg in 1595, went into Italy for his learning, and stayed in his professorship; he was seven times appointed dean of the university of Rome, and professor of the medicine of the university of Padua. He died November, 1632. Bev. Bessler, brother to Bessler, was born at Nuremberg in 1595, and in 1612, was created an apothecary. Applied to the use of this profession he soon became celebrated in that country. In 1643, he published "Herbes cystatorum præcizados, unius ordinarium plantarum ex variorum ortibus patris, singulari studio collectarum, qua in celeberrimus viridarium armencis effectum jvem luidem cingenterum, hæc temporis contrariorum, demonstrat, et sivum represejiant," Nurem. 1613, in 4 vols. 8vo. folio. The work splendidly illustrated, the plates, 350 in number, and delineating 1533 plants were engraved at the expense of Conrad, bishop of this see. The work is accused to its execution, as before the errors committed in the description of many of the plants, and none of the delineations are fictitious, taken from fancy, or from the rude accounts of ignorant travellers. But the far greater part of them are correctly drawn, and beautifully executed. As Bessler was ignorant of the Latin language, his brother Jerom furnished the preface. He also published "Falcifolus rarius, et admiranda ignotis variis genus, quae non sequuntur," Nurem. 1616, 4to. Max. de tris etiam some marine plants and fruits: also, "Icones florum et herbarum, &c." fol. 1622. It is a continuation of the hortus eystettes, which have been several times reprinted. The time of his death is not known. Haller Bib. Pet.

BESLER, MICHAEL RUPERTUS, born at Basf, was born in 1667. Having studied some years at Altdorf, where he was admitted doctor in medicine, he returned to Nuremberg, and was advanced to the same offices that had been enjoyed by his uncle. In 1631, he published, in 4to. "De fagine sectundum et prater naturalum," and in 1640, folio. "Admiranda fabrica humana multibies partum generatione potissimum infirmitum, et fictus ficedis quique tabulis hactenus nonquam viva delineatio." The work is ingenious, but the plates, which are copied from Fabriacus, are ill executed. This work was followed, in 1642, by "Gazophylactum rerum naturalium ex regno vegetabilis, animalis et minerali de promptuarum fiduciis illustratum," fol. and the same year, by "Observatio medie familiaris, cum alios tres libros continet," 4to.

BESLERIA, in Botany, so named by Plinius after Basl, that was by Nuremberg, editor, with the assistance of Jungermann, a famous work, entitled "Hortus eystettensis," 1613. Lin. Gen. n. 755. Reich. 513. Schw. 1612. Plun. 8. Jacc. Amer. 187. Joff. 121. Garin. t. 52. Chas. and other "Botanicae insignis, &c." Nat. Ord. De nat. Speciunis, Scophelaria, Joff. Gen. Char. Cat. Periath one-half, five-parted, ornamental, erect, spiny, with reflexed tops. Cal. campanulata, ringed; tube the length of the calyx, rounded, gibbous on one side at the base, and at the top hard; five-lobed, divided into the lowermost half, the two upper having divided. Stem. Leaves four, within, the tube of the corolla, of which two are a little shorter; others oblong, twin, hanging down on each side. P. 4. Gyn globular, sitting on a glandulous body, which embraces it, and is permanent, coriaceous where the corolla is gibbous; hy vy subfuscum, erect; stigma filiform, obtus. P. 1. Berry subglobular, one-lobed; pendent, two opposite lanceolate leaves, not con- caved. G. 3. Seeds numerous, round, very small, thick, fixed to the inner surface of the berry.

BES. Char. Cat. five-parted; berry subglobular, many-lobed.

Sec. 1. B. meliloti. "Peduncle brunching; leaf oblong. It has a smooth, woody, pointed stalk; with two ovate nerves; leaves opposite at each joint, which are erect at their edges; the flowers proceeding from the wings of the leaves upon short branching stalks, each following in one with short leaves. A native of South America. 2. H. latif. Cham. Brown. Jan. 275. S. & C. fl. latum, major, Pinn. Gym. 29. "Peduncle terminal, or united; leaves lanceolate." Edging with the immediate leaf, or even seven feet high, divided to the top into many irregular branches, with spear-shaped bracteate leaves, having many twining branches, the flowers arising at the wings of the leaves in large clusters, each
on a separate footstalk, and small, tubulous, of a pale yellow colour." A native of Martinico, Jamaica, &c. 3. B. crista: a shrubby plant, differing in its habit from the foregoing, climbing up trees, and adhering to them by roots issuing from the joints; the twigs round, hispid, and long; the leaves ovate, acute, ferrate, hisped, wrinkled, veined, petiolar, opposite, two inches long; peduncles one-flowered, axillary, bent down, almost as long as the leaves; calyx bright scarlet; corolla yellow; stamens proceeding from a common membrane, faldened to the tube of the corolla, and eleft longitudinally at its gibbous part. Before the diffusion of the pollen, the filaments are upright; afterwards interwoven as in Martynia. A yellow conspicuous gland embraces the germ. A native of Martinico, in moist mountainous woods. 4. B. biflora. "Calyxes bivalve, torn." Stem herbaceous, long, creeping, hairy, round; leaves opposite petioloed, veined, hairy, nerved, a hand's breadth long; peduncles latered, opposite, shorter than the leaves, two from each axis, one-flowered; berry oval, with a hard two-celled nucleus; resembling the third species in the leaves and calyx, but very different in the fruit, and in wanting the five-leaved perianth. Observed at Sarmam by Dahlberg. 5. B. tigris. "Calyx semi-erect, falcate, ovate." A native of the island of Otaheite. 6. B. cyamens. "Peduncles cymose; pedicles with little bractes; leaves ovate, crenate." A native of the island of Tanna.

Propagation and Culture.—These plants grow naturally in the warm parts of America. The seeds should be sown on a hot-bed early in the spring, and the plants, when half an inch high, transplanted each into a small pot filled with light fresh earth, and plunged into a hot-bed of tuner's bark, watered and shaded till they have taken root; afterwards according to the warmth of the season, and the bed in which they are placed. When the plants have filled these small pots with their roots, they should be shaken out, and their roots trimmed and put into large pots filled with light fresh earth, and plunged again into the hot-bed, where they should have much air in warm weather, and be frequently watered. Thus managed, the plants will thrive in summer, but in winter they must be removed into the liove, and often, but sparingly, watered. In the second year these plants will flower; they sometimes perfect their seeds in this country; but as they will not live in the open air, they must be constantly preferred in the liove. Martyn.

BESONS Rocks, in Geography, are two small rocks off the western point of Cornwall, bearing W.S.W. from Cape Cornwall, and N.N.E. from the Long ships. Ships may fail within them without danger.

BESORCH, in Commerce, a coin of tin, or of some alloyed metal, current at Ormus, at the rate of about 12 parts of a farthing sterling.

BESS, or BEFULUS, in Geography, a river of Spain in Catalonia, which runs into the sea not far from Barcelona.

BESSARABA, in Ancient Geography, a town of Thrace, situate 12 miles from Philippolippos.

BESSAR, a town of Asia in Byzantium, situated near the Tigris. Potemkin.

BESSARABIA, BUDZIAC, or BODJAK, in Geography, is a small country of Turkey in Europe, situate between the north branch of the Danube and the river Dnieper, and bounded on the west by Moldavia, on the south by the Danube, on the east by the Black sea, and on the north by Russia. It was anciently the country of the Gete and Puceini; but it is now inhabited by the independent Tatars, of whom some have fixed habitations in their villages, and others lead a kind of wandering life, subsisting on the flesh of their oxen and horses, and on the milk of mares, and the cheese which is made of it. In their religion, manners, and customs, they resemble the Cimb Tartars. When an army is sent to attack them, they retire into inaccessible mountains, on the coast of the Black sea, whence it is impossible to expel them, on account of the moraLees and defiles. The chief towns are Bender, Akerman, Kismi, and Imsil. This country, and also Wallachia, on which it borders towards the south-west, contain some lakes of considerable extent, as those round Imsil, and that to the east of Suraz, which communicates with the Danube, and forms a part of that river.

BESSARION, Cardinal, in Biography, was born at Trebliod in 1395, and educated at Constanfa, under some of the most learned Greeks of that period. In the course of his education, he adopted the principles of the Platonic philosophy, and was more confirmed in them by the lectures of George Gemistus Pletha, on whom he attended in the Morea. These principles he combined with his system of Christian theology. Having taken the religious habit of St. Basil, he was soon advanced to the bishopric of Nicea, and employed by the Greek church to attend on their behalf at the council held under pope Engelius IV, first at Ferrara, and afterwards at Florence, in 1439; with a view of effecting an union between the Latin and Greek churches. But he incurred the displeasure of the Greeks by including to the party of the Latins, and proposing an union of the two nations, to the prejudice of the former, who were required unequivocally to declare that the Roman pontiff was the supreme head of the universal church. Beffarion became unpopular in his own country, nor could he venture to revisit Constantinople; but remaining at Rome, and subserbing the articles of the Latin church, he was recompensed, in 1439, by a cardinal's hat, and he was also created titular patriarch of Constantinople. Having perfected himself in an acquaintance with the Latin language, he was from this time employed by the popes in several concerns of moment. Nicholas V, after naming him to the bishopric of Sabina, and afterwards of Praetut, sent him as legate to Bologna, where he resided from the year 1450 to 1455, and contributed to revive and increase the reputation of the university. Upon the death of Nicholas, the cardinals had an intention of advancing him to the papal see; but when they waited upon him with this view, they were prevented from seeing him by one of his attendants, who would not allow him to be disturbed in his studies; upon which Beffarion, when he was informed of the fact, said to him, "Perot, thy inactivity hath cost thee a hat, and me the tiara." Beffarion was engaged by the popes Calixtus III and Pius II, in negotiating the mutual league against the Turks, and deputed for this purpose to Alphonso, king of Naples, and the emperor Frederic. During the pontificate of Paul II, he lived at Rome, and distinguished himself in the promotion of literature, by opening an academy in his palace for the study of philosophy, and for gaining a critical knowledge of the Greek and Latin languages: nor was he less liberal and active in encouraging every other branch of science, by countenancing with his presence and patronage those affinities that were frequented by the Greeks and Italians for the purpose of mental improvement. His library, which contained many Greek MSS, is said to have cost him 50,000 crowns; and this he presented, in 1468, to the republic of Venice, where it became the chief foundation of the library of St. Mark. Having received from pope Sixtus IV the appointment of legate to France for the purpose of reconciling king Lewis XI, and the duke of Burgundy, he paid his first visit to the duke, and thus offended Lewis to such a degree, that he treated him with rudeness, and disfitted him without
without entering on the business for which he was deputed. This kind of reception affected him so much, that on his return he fell sick at Turin, and died at Ravenna in 1572. He was regarded as a person of unparalleled genius and erudition; and he was the author of many works, both in Greek and Latin, some of which were printed, and others left in MS. The chief of these was his defence of Plato, against George of Trebizond, in a treatise entitled "In calumniatorum Platonis, lib. iv.," first printed without a date at Rome in 1570, and re-edited at Venice in 1523 and 1516, folio. In this publication he examines Plato’s opinions, particularly with regard to morals, and shews that they approach much nearer to the doctrines of Christianity than those of Aristotle. Of his printed works are letters, orations, and translations of Xenophon’s Memorabilia, the metaphysics of Aristotle, and that, falsely ascribed to Theophrastus. According to Brucker, these translations are very obscure; but Huet comments Hefferon as the model of all good translators.

BESARKNOVA, in Geography, is the well point of a bay in the sea of Azof, of which the east point is Cape Berdinsky. N. lat. 46° 35’, E. long. 36° 46’.

BESSAGNO, or Besa-sen, a place of Iceland, (N. lat. 64° 6’) the residence of the king’s precent. In this place is a woollen manufactury, with a fulling mill belonging to it.

BESSAY, a town of France, in the department of the Allier, and chief place of a canton in the district of Montluin, 3 miles south of Moulins.

BESS, in Commerce, a Persian copper coin, in value 1/4 d’Ahering.

BESSON, in Geography, a town of France, and principal place of a district, in the department of the Puy-de-Dôme, 5 leagues south of Clermont. The town contains 1013, and the canton 11,016 persons. Its extent comprehends 435 kilometres and 12 communes. N. lat. 45° 31’, E. long. 2° 32’.—A11o, a town of France, in the department of the Var, and chief place of a canton in the district of Brignoles, 6 miles south of St. E. of Brignoles. The town includes 1578, and the canton 83 65 persons. The territory contains 374 5 kilometres and 7 communes. —Also, a town of France, in the department of the Sarte, and chief place of a canton in the district of St. Caimais, on the river Brave, 5 miles south of St. Calais.

BESSENEY, a town of France, in the department of the Rhone, and the district of Lyon, 4 leagues west of Lyons.

BESSENBACH, a town of Germany, in the circle of the Lower Rhine, and archbishopric of Mentz; 6 miles east of Aachenburg.

BESSERNE, a small island of Denmark, 2 miles S. E. of Veyore.

BESSI, in Ancient Geography, a people who inhabited a district of Thrace, near mount Hemus, called Bifcia. They lived in huts, and maintained themselves by plundering their neighbours. They were the mild savage and inhuman of all the Thracians, according to the account given of them by Str. Jerom, Paulinus of Nola, Eutropius, and Ovid. Their chief city, Ufculana, is now known by the name of Adrianople. They lived under their own kings, undisturbed by the neighbouring princes, till the conquest of M. Licinius Lucullus and C. Cassius Varus. Lucullus invaded their country; after a signal victory took possession of it, and subjected the whole nation to the Roman laws. The Romans afterwards allowed them to live under their own kings; but Piso, while he governed Macedonia so confusly, having treacherously seized Rabocentus, whom Strabo calls prince of the Bessi, caused him to be publicly beheaded; and this front of fornice raged among the whole nation, that they flung off the Roman yoke; however, they were vanquished in a considerable battle by Octavius, the father of Augustus. During the civil wars of Rome, they again attempted to recover their liberty, but were subdued by the famous M. Brutus, junior. In the reign of Augustus, one Vologeses, a native of the country and priest of Bacchus, having, under pretence of religion, assembled a numerous body of people, made himself master of the whole country, and entering the Chersonesus, committed most dreadful ravages; but was at last overcome by L. Piso, who obliged the savage inhabitants to lay down their arms, and submit to such conditions as he was pleased to impose. From this time the Bessi continued subject to the Romans, without making any further attempts to recover their ancient liberty. Eutrop. l. ii. Orph. l. iv. c. 3. Flor. l. iv. c. 12. Suicton, in Octav. Dio Cass. l. xvii.

BESSIERES, in Geography, a town of France, in the department of the Upper Garonne, 5 leagues N. E. of Toulouse.

BESSIGBEIM, a town of Germany, in the circle of Swabia, and duchy of Wuertemberg, near the conflux of the Ems and Neckar, 8 miles south of the Heilbronn, and 13 north of Stuttgar. The district of the same name is a good wine country.

BESSIN, the name, before the revolution, of a small country of Irance, in Lower Normandy, near the sea-coast.

BESSINES, a town of France, in the department of the Upper Vienne, and chief place of a canton in the district of Belle, situated in a deep, narrow, rocky valley, 6 leagues north of Limoges. The town contains 2511., and the canton 9372 persons. The territory includes 180 kilometres, and 77 communes.

BESSIS. See Bis.

Bessis Centum, denotes twiehords of cubic inches, orậyy at eight per cent.

BESSONTE, J., in Geography, a town of France, in the department of the Savoie, and chief place of a canton in the district of Caltres, 3 leagues N. N. E. of Caltres.

BESSY BEU, a mountain of Ireland, in the county of Tyrone, 10 miles south of Strabane.

BESTAAD, a town of Norway, 56 miles N. N. E. of Drontheim.

BESTAGNO, a town of Italy, in the duchy of Monteg, on the Borinda, 18 miles E. of Alba.
BESTAIL, or BESTIAL, in Ancient Statutes, is used for all kinds of cattle. 4. Edw. III. c. 3. It has been appropriated more, in former times, particularly to those that were purveyed for the king's provision.

BESTARCHA, a dignity in the courts of the emperors of Constantinople, supposed to answer to that of the Master of the wardrobe among us.

The word bestarcha seems to have been formed from *bestarca*, by a change of τ into β.

BESTERTZ. See BISTRITZ.

BESTIARI, among the Ancient Romans, those who were hired to combat with beasts, or those who were exposed to them, by sentence of law.

We usually distinguish two kinds of bestiarii: the first were those condemned to the beasts; either as being enemies taken prisoners, or as being slaves, and guilty of some enormous crime.—Those were all exposed naked, and without defence, to the beasts; nor did it aught avail to conquer and kill the beast, frenz ones being continually let loose on them, till they were dead. But it seldom happened that two were required for the same man; on the contrary, one beast frequently dispatched several men. Cicero mentions a lion, which alone dispatched two hundred bestiarii.—Those who succeeded the first were called τεχερες, and the last *τεχερες*; among the Romans, *meridians*.

The Christians were bestiarii of this kind, even some of them who were Roman citizens; though it was the legal right of such to be exempt from it.

The second kind of bestiarii, Seneca observes, confined of young men, who, to become expert in managing their arms, fought sometimes against beasts, and sometimes against another; and of bravoes, who, to show their courage and dexterity, exposed themselves to this dangerous combat. Augustus encouraged this practice in young men of the first rank; Nero exposed himself to it; and it was for the killing beasts in the amphitheatre, that Commodus acquired the title of the Roman Hercules.

Vigeneor to these adds two kinds of bestiarii more: the first were those who made a trade of it, and fought for money; the second was where several bestiarii, armed, were let loose at once, against a number of beasts.

BESTOROZIN, or BESZERMEY, in Geography, a town of Hungary, 8 miles N.N.W. of Debreczin.

BISTRITZA, or BISTRIZA, a large town of Lower Hungary, on the Wagg, with a cable facing it, seated on a high rock on the opposite side of the river.


peta difta. Park. par. 489. Turnep-rooted red beet. 5. *B. lutea* major. Bauh. pin. 118. Rall hilt. 204. n. 5. —*arya*. Park. theat. 751. n. 3. Yellow-rooted beet. 6. *B. pallide viricas* major. Bauh. pin. 118. Green-leaved red beet. "Flowers headed; leaves of the calyx toothed at the base." This species has large, thick, succulent leaves, generally of a dark red or purple colour. The roots are large and deep red, on which their goodness depends; for the larger they grow, the more tender they will be, and the deeper their colour, the more are they esteemed. A native of the coast of the southern parts of Europe. The variety alba has the leaves shorter than in the white beet, more or less red, and sometimes so dark, as to be called black beet; its root white. 8. *B. fusa* has leaves large and red, as is the whole of the plant, as well root as stalk, and flowers full of a purple juice, tending to redness; the midrib of the leaves are very broad and thick, like the cabbage leaf, and equal in goodnews when boiled. Gerard says, that it grew with him in 1596, to the height of eight cubits, and brought forth its roots feeds very plentifully. These, though taken from a plant of one colour, produce plants of many and valuable colours. 9. Stem higher than the common red beet; root thick, within and without of a high blood colour. 8. Leaves paler than those of the white beet, of a greenish yellow colour; the root of a fine, high yellow, sweet and well tasted. All these are mere feminine varieties. The beet is subject to change, and to degenerate, at least in our climate. It has been supposed, that the *B. ceto* is not specifically different from the *vulgaris*, and that both are derived from the *maritima*, cultivated on a rich soil, in southern climes. The beet is said to be prejudicial to the stomach, and to yield little nourishment. Taken in quantity, it tends to loosen the belly. The juice of the root and leaves is said to be a powerful emetic, and to occasion a copious discharge of mucus, without provoking freezing. A good sugar may be obtained from the juice of the fresh roots. This species was cultivated in 1636 by Mr. John Tradescant, jun. 2. B. ceto, white garden beet. B. hortensis. Mill. Diff. n. 2. B. vulgaris, z. Lin. Spec. 322. B. alba. Ger. 251. n. 1. emac. 318. n. 1. Rall hilt. 204. B. communis alba. Park. par. 490. 1. B. alba vel palletecas, quæ cicca offic. Bauh. pin. 118. and B. communis viridis *spinthyl*. "Flowers three-fold; leaves of the calyx unarmed at the base." The root of this for t is seldom grows larger than a man's thumb; the stalks grow erect, and have oblong, spear-shaped leaves growing close to the stalk; the spikes of flowers are axillary, long, and have narrow leaves placed between the flowers; the lower leaves are thick and luscent, and their footstalks broad; and for the sake of the cheese it is cultivated. A large variety of this has been lately introduced from abroad, under the titles of "Racine de diettier," "Root of Scarlet," and "Mangel Wurzel." The anciently called the white beet *Ceto*, or rather *Seto*, by contradiction from *Sicula*, Sicilian beet; as we call the Savoy-cabbage, *Savoy*. Mr. Miller mentions three varieties of this, viz. the white, the green, and the Swiss or chard beet; by the latter of which he probably intended the name as the modern "Mangel Wurzel." He says that they vary from one another in culture, but that they never alter to the first or the third. 3. B. maritima, sea-beet. Lin. spec. 322. S. 262. Reich. 623. Hudf. 108. Witter. 275. Eng. Bot. t. 285. Smith. Flor. Brit. 115. B. sylvæstris maritima. Bauh. pin. 118. Park. theat. 750. 2. Rall hilt. 157. n. 204. Ger. emac. 318. 2. Sea-Beet. Pet. H. Brit. t. 8. f. 9. "Flowers double or twin; stalks decumbent; leaves of the calyx even, not toothed." It differs from the others, according to Linnaeus, in flowering the first year; in having oblique or vertical leaves; and in the leaflets of the calyx being equal, not toothed; according
BETA.

ing to Ray, in having a perennial root. This is probably the original parent of all the garden beets. A native of Holland and Great Britain, on the sea-coast, and in salt marshes; it is also found plentifully about Nottingham. It is perennial, and flowers in August. 4. B. patula, spreading beet. Nut. hort. kew. p. 435. "Flowers heaped; all the leaves linear-lanceolate; branches divaricated. " Stem short, hardly a foot high, very branching; branches long, terminal; calyx-inner petals at the base, but not toothed." Flowers in August. A native of the island of Madeira. Introduced in 1798. Martyn.

BETA, in Gardening, comprehends several different useful edible roots and culinary herbs of the hardy kind, as the B. cicla, or common culinary beet, which has a small, oblong, white root, producing from its crown many large, oblong, succulent leaves, on broad footstalks, and erect branching feed; stems two or three feet high, garnished with close-set ting leaves, and long spikes of greenish flowers, which are succeeded by plenty of ripe feed in autumn. The varieties of which are the common green-leaved beet; {large white beet; chard, or great Swifts beet, having very broad leaves, with thick foot-stalks and ribs. These often vary from one to the other, the feed of one frequently producing some of each sort, though by proper care in sowing it, the difference may be preferred.

The B. major, or great German beet, commonly called mangel wurzel, has a large, long, reddish, or sometimes whitish red root; and very large, oblong, thick, succulent leaves. The varieties of which are—dark green-leaved—light green-leaved—red-stemmed beet. This species has been very much recommended, on account of its vast growth and great utility both in its root and leaves; experience has, however, shown the former to have little claim to eileem for domestic uses, as it is of an inapid and unpalatable taste; but the leaves being large and succulent, are good to use occasionally, in the manner of common beet, and particularly to boil as spinach, or put into soups; and the stalks and midrib of the leaf to be dried and eaten as aparagus. Dr. Lettson, who took much pains to introduce the mangel wurzel, informs us, that on his own land, which was not favourable to its growth, the roots, upon an average, weighed full ten pounds; and if the leaves were calculated at half that weight, the whole product would be fifteen pounds of nutritious orch, upon every square of 18 inches.

The B. rubra, or red beet, has a large, red, edible root, crowned by many large, oblong, reddish-dark-purple leaves; and when it shoots, sends up erect stalks and branches, terminated by long spikes, of flowers and seed. The varieties of which are common red beet, with a large, long, dark-red root; turnip-rooted red beet, with a stout, large, dark-red root; with a red root; and green leaves; with a yellow root; but the first of these varieties is most preferred for general culture, though the second is equally good, but the root is not of so good a shape as that of the former; the other two are not proper to cultivate for a crop.

Methods of Culture of the common Beet. All the varieties are propagated by seed sown annually in the spring, in February, March, or April; in the places where the plants are to remain, in order to attain proper growth for use in summer and autumn. They will continue till spring, when they shoot for feed. If the feeding be neglected in the spring, some feed may occasionally be taken in summer, any time till the beginning of August. In a month from then, but the spring is the most eligible season for obtaining a good crop. They may be sown in any common soil, allowing each foot a separate plot or bed. The soil should be dug one foot deep, in the usual way; the seed then either sown broadcast on the surface, and raked in; or, as it is a large feed, shallow drills may be drawn, at the distance of six inches for the common green and white varieties, but almost double that for the large white and chard beet, sowing the seeds thinly, and raking the earth over them, about an inch deep, then trimming the surface smooth. The plants come up in about a month, and when they have leaves an inch or two broad, they should be hoed, to thin and destroy weeds, cutting out the common green and white sorts to about six inches distance; but the chard beet should be allowed ten or twelve inches room every way, that their large succulent leaves may have full scope to spread. They are commonly in perfection in June and July, and it is necessary to observe, in gathering them, to take the large outward leaves, the others coming in for use in their turn, an abundant succulent supply rising from the root. A succulence crop must be raised every year from feed in the spring, &c. for although the same crop might be occasionally continued two years, by cutting down the feed-items of the year-old plants, according as they advance in spring and summer; the roots abiding, produce a supply of leaves, but which are much inferior in quality to those of the annually-raised feeding plants; it is better, therefore, to grow every year, in order to have a good production. The large white and great chard beet are in much esteem, for the stalks and ribs of the large leaves, being divested of the leafy part and peeled, are good improvers of soup, and useful also for flaving, and to be dried and eaten like paragus, and the leaves themselves are fine pot-herbs; for all which uses, the several varieties of this species may, as has been seen, be obtained almost the year round.

The Mangel Wurzel Beet. This fort has generally been reckoned a variety of the B. cicla; but some botanists have made it a distinct species, under the title of B. altiflora. It is raised from feed sown annually in the spring, the same as the other sorts, in any open situation, but should generally be sown thinner, either in drills one or two feet asunder, or broadcast on the general surface, and raked in; and when the plants are come up one, two, or three inches in growth, they should be thinned to a proportionate distance, to give room for the full expansion of their large leaves. Some, however, advise transplanting, when the young plants are of two or three inches in growth, setting them in rows one or two feet asunder; this seems, however, unnecessary; especially, as they have long, downy, tap roots, which generally are the most successful when they remain where sown; the method may, nevertheless, be practised occasionally by way of experiment. The plants generally continue to produce leaves the greatest part of the year, and the roots attain perfection for use in autumn and winter, till spring; but when it is required to have a principal crop of full-sized roots, some should be allotted for that purpose, without cutting or gathering the leaves. This fort is valued most generally for its leaves, for which it principally is cultivated in the gardens; as we cannot much recommend the root, which, although it grows very large, sometimes of several pounds weight, is greatly inferior in use, both to the red beet, and to that of most others of our edible roots, for any domestic purposes. It is sometimes used in the manner of carrots and parsnips, &c. dried, and used up with butter, but is generally of a meagre, unpalatable quality.

The leaves, however, which, it the plants have large scopes of room, grow twelve or fifteen inches broad or more, and of proportionable length, are exceedingly good, when young, to use as the common white and green beet; and the young, thick, fleshy stalks, divested of the leafy part, peeled or
scraped, then boiled and served up with butter, are tender and agreeably tasted; also the leaves to boil occasionally as spinach and other small greens; and of which the root is remarkably productive in quick growth, to afford frequent succedaneous gatherings all summer and autumn, either cutting them off close, or gathering only the larger outward ones, as in either method they soon shoot up again in plentiful succession.

The Red Beet. This is raised from seed sown annually in March or April, in the place where the plants are to remain, being careful to procure that of the best dark red root. It should be allowed a light, rich, deep soil, in an open exposure. The market gardeners often sow this root thinly among their crops of onions, carrots, &c. that are to be drawn off while young; so that when these are gone, the beet commences a full crop.

It is, however, a better practice to sow the principal crop separate. The ground should be dug one spade deep at least, and well broken, the seed sown directly, which may either be broadcast on the surface, or raked well into the ground; or, as observed of the first root, in drills drawn an inch deep, and at the distance of ten or twelve inches; or you may do it or prick it, as is often practiced, with a blunt dibber, in lines at the above distance, making the holes an inch deep, and eight or ten inches, the rows, dropping two or three seeds in each hole, though only one good plant should be left in each place. In May or June, when the plants have leaves an inch or two broad, they require thinning and clearing from weeds, which may be performed either by hand-weeding or small hoeing; the latter is the most expeditious for large crops, and it loosens the surface of the earth, to the great advantage of the young plants; carefully eradicate all weeds, and thin the plants to ten or twelve inches distance. Some of the roots will be fit to take up for use about the end of August, though they will not attain full perfection until October. In November, a quantity of the roots should be taken up, their tops trimmed off, not too close, and then laid in land or dry earth, under shelter, to be ready for winter use.

This sort of beet is highly valued for its large red root, which in the common variety, often grows twelve or fifteen inches long, and three or four inches thick or more; but that of the turnep-rooted sort is much shorter, and generally thicker, and of equal goodness in every respect for use; and in both of which, those that are of the largest growth and darkest red colour, are the most valuable: these roots being tender, sweet, and palatable, are boiled, sliced, and eaten cold, &c. are also sliced and scraped in fullal'd, both as an edible ingredient, and by way of garnish; slices of the root are also in request not only as garnish to dishes, but as a pickle: the other varieties are never cultivated for any principal crop.

Saving of Seed. In order to save seed from any of the varieties, either mark some of the best plants in spring, to be left to run up, or transplant some of them in February or March into a convenient place, to have shelter from winds; they shoot up flalks in May; in June they must be supported with flales; and the seed will ripen in September.

That a great quantity of sugar might be obtained from white beet, has been long known. The famous chemist Margraaf made experiments, half a century ago (published in the year 1747) for determining the quantity of sugar contained in various European plants. He found that the white beet produced a much greater quantity than any of the other plants. The beet has of late been much cultivated, particularly in Germany, with a view to the sugar that is obtained from the root. M. Achard of Berlin, first introduced this subject into general notice, and recommended that the sugar should be procured by boiling the beet-roots, when taken out of the earth; that they be sliced when cold; that afterwards the succedaneous gathering is collected; and that it be filtered, evaporated, and, after evaporation, the sugar be procured by crystallization and purified. He has published his method at full length, in "Ausführliche Bechlerburg," Berlin 1799. 8vo. He lays much stress on the mode of culture, and observes, that red sugar can be produced at about three-pence a pound. His peculiar mode of culture consists chiefly in planting the seeds at a certain distance from each other, and in not transplanting the roots. M. Achard reckons three varieties of the beet-root; but he prefers that which has the skin of a red earth, and the flesh white. The kinds of beets which have been used for this purpose, are varieties of the B. vulgaris. Mr. John Taylor of Leipzig has given a particular account of the method of cultivating the common beet, and of preparing sugar from its root, in a letter addressed to his father, the secretary of the society for the Encouragement of Arts, &c. and published in the 18th volume of the Transactions. He observes, that the soil should be a good black earth, too moist; and that it should be prepared, like that designed for cabbages, by dunging it in autumn with short rotten dung, and ploughing it, and by turning it again in spring, and ploughing it at a third time to a greater depth than before. After the third ploughing, says M. Achard, it should be carefully harrowed, to render it smooth and even, and to break all the hums of earth which may happen to be in it. The seeds are usually placed at the distance of from 12 to 18 inches from one another, from 9 to 12 inches according to M. Achard, and at the depth of one inch in the earth. One seed is laid in each hole, and immediately covered with earth. In four or five weeks time the ground must be weeded, and afterwards hoed. Some prefer transplanting the roots, to sowing the seed in the ground where the plants are intended to remain. M. Achard forbids all transplanting; and one of his reasons for this prohibition is, that the lower part or points of the roots are liable to be thus broken off, which part, he says, gives more sugar than the upper part. After they have been some time in the ground, the earth should be loosened with a hoe, and the weeds destroyed. The method invented by professor Guttling for separating the sugar from the beet-roots, is easily practicable, and adapted to this country. It is as follows:—He recommends the taking of the beet-roots out of the ground from the middle of September to the middle of October, that the weather may be favorable for drying them, which should be done carefully, left, as M. Achard observes, they should be damaged, and any of the juice which oozes out left; and washing them as speedily as possible from the earth that adheres to them, and cutting off their small fibres as well as such part of the root as had arisen, whilst they were growing, over the surface of the earth. The roots are afterwards wiped with a cloth, and laid upon a dry floor; the heads are cut off and given to the cattle; and the roots are sliced lengthways, along the middle, each half being cut again into slices, and loosely hung, not too near each other, left they should spoil, on strong thread, suspended on nails, in an airy chamber or place secure from the rain. In the course of two or three weeks, with proper attention, they will be sufficiently dry for the extraction of their sugar. If the drying season is far advanced, or a frost expected, the beet-roots should not be exposed to the outward air; they should be dried in the kitchen or warm rooms, either on strings or netted frames, resembling the flake used in Yorkshire for drying oat-cakes; or they may be dried in rows-rooms by artificial
artificial heat, taking care to prevent their being smoked or burnt. If an opportunity does not occur for delaying the roots immediately after being taken out of the earth, they should be placed in cellars, and covered with straw, or put into holes in dry sandy earth, and preserved till they are wanted.

M. Achard says, that after the roots are washed and cleaned, they should be dried by means of a machine, or ground in a mortar mill, consisting of a cylinder furnished with points, like a rasp, which turns round in a box. The roots are put in this box, and prefixed, by means of a weight against the cylinder, which, upon being turned round,soon reduces them to a kind of pulp. When the beet-roots are dry, they are ready for the extraction of their sugar. For this purpose, three wooden tubs, wids, but not deep, made of oak, ash, or willow, should be provided, or, for family use, earthen mugs. Near the bottom of the tub, cocks or spigots should be fixed, and the tubs should be placed in a cool situation of about 52° Fahrenheit, upon a shallice near each other, and at such a height from the ground that smaller vessels may stand below them for receiving the liquor when drawn off, and clear water should be at hand so as to be pumped into the higher vessels. When the beet-roots, thoroughly dried, have been lifted, so as to be free from the dust and loose fibres, one of the higher tubs should be half filled with them, and clear cold water poured upon them, about one-third in height above the roots. In this state they should remain for about three hours, stirring them at different times with a wooden paddle. At the end of this time, the same number of clean dried roots should be put into the second tub; and the sweet liquor drawn from the first tub into the vessel under it, should be poured upon the roots in the second; and the first tub should be supplied with fresh water in such quantity as just to cover the roots, and the tubs should remain three hours more, and the roots be repeatedly stirred, as before. The liquor which had been poured from the first tub to the second, will be now much abridged by the roots in the latter tub. After standing again for three hours, the sweet liquor from the second tub must be drawn off, which, if the roots were of the red and white sorts, will be of an agreeable red colour. It must then be passed through a sieve, or filtered through a flannel, and thus be rendered fit for boiling down for sugar. After this, draw the liquor from the first tub, pour it on the second, and put into the first tub more fresh water, and let it stand three hours longer. Then put into the third tub the usual quantity of dry roots, and pour on them the liquor drawn from the second tub; remove the liquor from the first to the second; and the roots in the first tub being now deprived of their saccharine matter, may be used for feeding hogs or cattle. After three hours more, the liquor should be drawn from the third tub and filtered as before, and then boiled down for sugar. Then draw off the liquor of the second vessel, and pour it into the third; add fresh water to the second vessel, and let it remain three hours more, the roots being occasionally stirred. During this time clean out the first tub, and add fresh roots, as before. After three hours, draw the liquor from the third tub, and pour it upon the fresh roots in the first; then draw the liquor from the second tub, and pour it on the third. The roots of the second tub will be now exhausted, and may be given to the cattle. After three hours draw off the liquor from the first tub, filter it, and it will be ready for boiling down. On the contents of the first, pour the liquor of the third, and put fresh water in the third tub; let it remain three hours, and stirred as usual; during which time clean out the second tub, and let the roots be given to the cattle. In the second tub place again fresh roots; and proceed by extracting the saccharine matter, as before; and continue the operation, till all the dried roots have been thus freed from their sugar.

By this management, the liquor becomes more charged with saccharine matter, than when the juice is pressed out of the roots, and a considerable quantity of fuel is spared. The roots from which the liquor has been extracted will have swelled much in the operation, and have lost their sweetness: their farmaceous residuum will, however, afford good food for cattle. Whenever there is a sufficient quantity of dried roots ready, the proc. is of extracting the saccharine liquor should be continued day and night, as it is not proper to let the liquor remain longer than three, or at most four hours, before you boil it, lest a diffusion of the mucilaginous particles of the roots should take place. If it be not convenient to boil down all the saccharine liquor at once to a state of crystallization, yet it should be daily boiled down to the confine of a syrup, in order to prevent its fermentation. In boiling the liquor, the feum that arises should be carefully taken off.

The proceeds of boiling, crystallizing &c., the beet sugars is as follows. First boil the extracted saccharine liquors down to the confidence of a syrup; then put it into a copper, of which one-third at least is empty, and let it boil away by a moderate fire, until a phial, which holds one ounce of water, will contain eleven drams of the syrup, or until the syrup pours somewhat broad from the ladle.

The syrup must not cool too much before this filtration, or else it becomesropy. When the filtered syrup is somewhat cool, it should be laded into shallow wooden or tin vessels, to crystallize; for this purpose, shallow earthen vessels, such as are used to produce cream, or vessels made of tin, are proper. These vessels, filled with syrup, must be placed in a room heated to about 68° of Fahrenheit, and care must be taken to keep them free from flies and dust. If the syrup has been of a proper confection, crystals will soon begin to form at the bottom of the vessels; and in an interval of 18 or 21 days the crystallization will be completed. The mass must then be put into a strong linen sack, well secured, and placed under a press, to squeeze out the liquid from the sugar which remains in the bag. The liquid matter may be set to crystallize a second or third time, and will yield sugar of a coarser quality. A cheesepress, or long lever, will serve for the purpose of pressure. The sugar first obtained, may be rendered purer by mixing with it a small quantity of clear spring water, and placing it again under the press; the coloured syrup will then run out, and leave the sugar in the bag in a much purer state than before. By repeating the operation, it is in far improved, that, when dried and rubbed, it becomes a fine white powder sugar. The separated syrups should be again carefully boiled, and more sugar will be obtained from them by crystallization. If the sugar procured by the first pressure be dissolved in as much clear water as will form a syrup, and placed again in a warm room to crystallize, it will yield a much purer and harder sugar: the syrup may then be separated without pressure from the sugar, merely by inclining the vessel, and allowing the syrup to run off from the crystals. All the syrups thus prepared, are fit for family use, and are much superior in taste to those prepared from the press of the raw or boiled roots. The remaining thick syrups may be used as treacle or molasses, and will serve to distil form or spirits. From the experiments
of professor Lampadius of Freyberg, near Dresden, it appears, that beet-roots contain water, fibrous matter, sugar, mucilage, glair, flarch, colouring matter, scented matter, and a bitter subflance. The water is in the proportion of from one-half to one-third of the weight of the roots; the fibrous matter of the roots differs, and is considerably more in poor than in rich roots; the faccharine particles vary from two to five per cent.; the mucilage is from three to five per cent.; and the glair, or matter resembling white of eggs, is about one per cent.; the flarch is in very small quantity, being only about two or three ounces in a hundred weight; the colouring matter undergoes several changes by exposure to the air, as yellowish, brown, and red, and may be precipitated by acetate of lead; the scented matter is volatile, rising in distillation of the root with water, combining clofy with spirits of wine, and producing a peculiar conatraction in the organs of taste. By boiling the beet roots, the smell and taste are very much leskened. The bitter subflance is soluble in water, and remains behind in the first syrup after the crystallization of the sugar. From other experiments of the same professor, it appears, that 11 lbs. of beet-roots, the beta cica of Linnaeus, or white English beet, washed, peeled, cleaned, and then grated, gave a mass which weighed 57 pounds; out of which were pressed 41 1/2 pounds of juice, which was boiled with 20 1/2 ounces of charcoal powder. This, when filtered and evaporated down until crystallized, produced five pounds of a brownish yellow-grained sugar, and also five pounds of brown syrup. The above brown sugar, after being distilled in six pounds of lime-water, mixed with one pound of blood, then boiled, filtered, and afterwards evaporated, yielded four pounds 5 1/2 ounces of purifried brown sugar, and 61 ounces of syrup. The four pounds 5 1/2 ounces of sugar, thus prepared, were again distilled in six pounds of lime-water, mixed with one pound of milk, and then boiled for a quarter of an hour; during the boiling, a small quantity of white wine vinegar, and a little more milk, were added; the faccharine matter was filtered, and treated as before; the product was four pounds of well-grained white powder sugar. The residuum after preasure, the brown syrups of the two first processes, and the remains of the filtrations, weighed, when collected, 40 pounds; they were mixed with one quart of yeast, and 80 quarts of water, heated to 112° Fahrenheit, and after fermenting 48 hours, were distilled. They furnished, at the first distillation, 15 quarts of weak spirit, which, on a second distillation, gave eight quarts of a better; from which, when rectified, were produced 5 1/2 quarts of spirits resembling rum. 

From the result of this series of experiments it appeared, that after paying the farmer for the roots, and discharging all incidental expenses whatever, a profit was yielded of nearly 60 per cent. on valuing the four pounds of white powder sugar at one thilling per pound, and the three quarts and a half of rum at one thilling per quart. The produce of beet-roots and their quality for yielding sugar, have, however, been variable; and of course the profit accruing from them. From M. Achard's account we learn, that 24 measures of roots, each of which weighs about 70 pounds, (in all 2160 pounds) and costs about 6d. English, produce 1200 pounds of raw sugar; that is, 200 pounds of roots produce nearly one pound of sugar. One hundred pounds of raw sugar give 55 pounds of refined sugar, and 25 pounds of molasses. Another statement informs us, that 14 pounds of raw sugar gave 1 1/2 pound of lump-sugar, 1 pound of white powder sugar, and 1 1/4 of darker-coloured powder sugar, and eight pounds of brown syrup; from which more sugar might have been obtained. It is computed, in M. Achard's account, that a German square mile of land, (that is, 16 square miles, English), properly cultivated, would produce white beet sugar sufficient to furnish the whole Prussian dominions with sugar.

**BELENSOS, BETANZOS, or BITANZE, in Geography, a town of Spain, in Galicia, 2 leagues from Corunna, 9 from Compostela, and 7 from Ferrol. It has a good harbour in the mouth of the river Mandeo. N. lat. 32° 15' W. long. 7° 50'**

**BETEL, in Botany, an Indian plant, in great use and esteem throughout the East, where it makes a considerable article of commerce. See Piper.**

The betel bears some resemblance to the pepper-tree. It grows like ivy, and twists round other trees. Its leaves are long and sharp-pointed, but broad towards the stalk, and of a pale green colour. They are like thoke of ivy, only softer, and full of red juice, which, among the Orientals, is reputed of wonderful virtue for fortifying the teeth, and rendering the breath sweet. The Indians are continually chewing these leaves, which renders their lips red, and teeth black, a colour by them vailly preferred to the whiteness affected by the Europeans.

The consumption of betel leaves is incredible; no body, rich or poor, being without their box of betel, which they prefix to each other by way of civility, as we do snuff. In many places they chew the areca nut, either alone or mixed with the betel leaf and lime, and the leaves of this plant are sometimes chewed alone; but they are too hard, and usually injure the teeth, and it is not uncommon to find men of 25 wholly toothless in this part of the world, merely from their having chewed this plant to an excessive degree. The prepared betel is a very common present among the poorer fort; and on taking leave of a friend, it is always the custom to make him a present of a purse of the leaves prepared for use. When the poorer fort are to appear before the rich, they always chew a large quantity of betel to give them a sweet breath; and the women, on certain occasions, never fail to take largely of it as a provocative. On all visits, the company is regaled with prepared betel. The principal time of using it is after dinner, at which time, they say, it preventsickness at the stomach; and they never abstain from it, except on the solemn occasions of the funerals of their relations, and their days of fasting. Moderately used, it is said to strengthen the gums, corroborate the heart, and stomach, diffuse flatulencies, purge both the stomach and brain, and prevent the fever. If chewed after breakfast, it makes the breath sweet for the whole dry. The Portuguese women are as fond of the betel as the Indians themselves, and cannot live a day without it. It is said, however, that few Europeans can accustom themselves to the use of it. On many occasions it produces sickness, and sometimes intoxication, of no long continuance. The Chinefe also use the leaves of betel, covered with quicklime, and wrapped round the nut areca, which in shape much resembles a nutmeg. They chew these leaves continually, and pretend that they strengthen the gums, comfort the brain, expel bile, nourish the glands of the throat, and serve as a preservative against the a tinha; a discharge which, from the heat of the climate, is very common in the southern provinces. They carry betel and areca (see Areca) in boxes, and prefer it when they meet one another.

**BETELGUELE, or BDELGAZEE, in Astronomy, a fixed star of the first magnitude in Orion's hind shoulder.**

**BETESKO, in Geography, a town of Siberia, on the west side of the Irith, 230 miles S.E. of Tobolik.**

**BETHE,**
BETH, in Literary History, makes the title of a multitude of books in the Hebrew language; e. g., "beth avoth," or, the house of the fathers; "beth Elohim," or, the house of God; "beth Isra'el," or, the house of Israel, &c.

BETHABARA, i. e., the House of Passage, in Ancient Geography, is supposed by many to be the place at which the Israelites passed over Jordan, over against Jericho, at the common ford of this river where the Israelites passed it under Joshua. Ch. iii. 16. Lightfoot refers it to the passage at Scythopolis, out of the precincts of Judaea, where the Jews dwelt among the Syro-Greeks, over against Galilee. Cellarius places it between these two, observing that there were many passages over Jordan. At this place, beyond Jordan, John is said to have baptized. Chap. i. 28. Origen found, as he tells us, in almost all his MSS., or, if we may judge from what follows, in every one of them, without exception, this verse thus written, "These things were done in Bethany beyond Jordan, where John was baptizing." But he rejects this reading for the following reason: "As I have been in that country, in order to trace the footsteps of Christ and his apostles, I am persuaded that we ought not to read Bethany in this passage, but Bethabara. For Bethany, as the evangelist himself relates, was the birthplace of Lazarus, Martha, and Mary, and only 15 stadia from Jerusalem; but the Jordan was at least, to speak in round numbers, 150 stadia from that city. Nor is there any city whatsoever of the name of Bethany near to that river. But there is a city of the name of Bethabara on the banks of the Jordan, where, it is said, John baptized." To this alteration it has been objected, that Origen grounds the reading, which he has substituted for Bethany, on no other authority than the relation of such persons as conduct travelers to the places in Palestine, which are mentioned in the sacred writings. These persons either had no inclination to conduct Origen to the Bethany, which lay on the other side of the Jordan, as the journey might have been attended with danger, on account of the tribes of wandering Arabs, who infested that country; or they were wholly ignorant of the place. Not to foregoing, therefore, their profits arising from conducting strangers, they showed Bethabara to Origen, as the place where John baptized, and the learned father was credulous enough to believe them. Besides, if the text itself be examined, Origen's objections to the common reading will vanish. He says, that Bethany lay near to Jerusalem, and therefore at a distance from the Jordan. But it may be added, whether there was not more than one city of that name, and whether we must needlessly suppose, that the city in question was the place where Lazarus resided. It appears, even from the expression used by St. John, that, whether we read Bethany, or Bethabara, there was more than one city of the name, which he mentioned. St. John mentions a circumstantial by way of distinguishing it, and when he speaks of Bethany beyond Jordan, we are led to suppose, that there were two cities of that name, and that the city which he meant was different from that which was situated on the mount of Olives. But Origen says, that there was no town of the name of Bethany on any part of the Jordan. To this it might be replied, that Origen hardly visited all the towns on the bank of the Jordan, as he probably took the route pointed out by his guides, or that the wars between the Jews and the Romans had so defeated, or altered the face of the country, that many towns had existed in the time of John the Baptist, of which no traces remained in the days of Origen. But this mode of reply is needless, because the evangelist uses a very indeterminate expression, when he says, that the place, where John baptized, was on the other side of the Jordan; an expression which by no means implies that the town lay on the banks of that river; for it might have been situated either on the Jabbok, or on some other stream conteradibly to the eastward, where John had a sufficient supply of water for the purpose of baptizing. The alteration, therefore, made by Origen, and which upon his authority, and that of Chrysostom and Epiphanius, is introduced into our copies, was wholly without foundation. See Michaelis's Introd. to the N. T. by Mathl, vol. ii. p. 428.

BETHABARA, in Geography, the first settlement of the Moravians in America, in the lands of Wachovia, in North Carolina, begun in 1753, 6 miles N. of Salem, on the west side of Grassy creek, which unites with the Salisbury, and several others, and falls into the Yadkin, and containing a church of the United Brethren, and about 50 dwelling houses.

BETH-ACHARA, or BETH-ACHEREE, (Jer. vi. 1.) i.e., house of the vineyard, a city situated on an eminence, between Jerusalem and Tekoa. See Nehem. iii. 14.

BETHAGLA, or BETH-AGLA. A TOWN of the tribe of Benjamin, (Josh. xviii. 21.) on the northern boundary of the town of Judah. In the time of Jerome and Eusebius there was a village in this situation of the name of Agha, distant 10 miles from Eleutheropolis, towards Gaza.

BETHA-CABRIS, now BAIT-DJERM, a village of Syria, about 3/4 of a league to the south of El-Tell; situated between Jerusalem and Asealon.

BETH-ANATH, House of a Song, or of Affliction, a city of Naphtali. Josh. xix. 38.

BETHANO, Cape, in Geography, lies on the coast of Chian, or Quinan, off which is Pulo, or Island Canton, which is about 9 or 10 miles from the coast. N. lat. 16° E. long. 108° 32".

BETHANY, in Ancient Geography, a village at the foot of the mount of Olives, called Jerusalem, in the way to Jericho. It took its name from a part of ground so called from "Atheni," which signifies the dates of palm-trees, which grew there plentifully. The town of Bethany, where Lazarus and his sisters dwelt (John xi. 1.) and where he was raised from the dead, was 15 furlongs, or about 2 miles distant from Jerusalem (John xi. 18.), but the district, or tract of ground, that bore that name, reached within 8 furlongs from Jerusalem, it being only a Sabbath-day's journey from it (John xxiv. 50. Acts i. 12.); and then commenced the tract called "Bethphage," from the "plagh," i.e. the green figs which grow upon it, extending to near Jerusalem, that the outward street within the walls was called by that name. A charge of self-contradiction has been alleged against the evangelist Luke, from the passage above cited. In the Gospel he tells us, that John ascended into heaven from Bethany, and in the Acts of the Apostles, of which he is the reputed author, he informs us, that he ascended from Mount Olivet. This charge is founded on an apparent diversity of ancient geography, or made to suit an unavoidable prejudice against Christianity, because Bethany, as we have above observed, was not only the name of a town, but of a district of Mount Olivet adjoining the town. See Bethabara.

BETHANY, or Bethania, in Geography, a Moravian settlement and poet town of America, in the lands of Wachovia, in North Carolina, begun in 1752, 6 miles N.W. of Salem; containing about 60 houses and a church.

BETTI-ARABAH, in Ancient Geography, a city of Judah (Josh. xv. 6.); afterwards given to Benjamin (Judg. x VIII. 22.)

BETHARAMFITHA, a town of Galilee, on the right bank
BETH, the House of God, a name given to that town, which was before called Luz, on account of Jacob's vision. (Gen. xxviii. 19.) They feem, however, to be distinguished in Joshua xvi. 2. though they were contiguous places; and the name Luz might probably be loth in that of Bethel. It was a city of Samaria, on the confines of the tribes of Benjamin and Ephraim. Eusebius says, that it was 12 miles from Jerusalem in the way to Sichem. It obtained among the prophets the name of Bethaven, on account of its idolatry. The Mahometans believe their temple of Mecca to be founded on the site on which the patriarch Jacob slept at Bethel, and hold it in great veneration. Some have supposed that the superfluous reftitute manifested by the ancients to their Betyli, or Hones anointed and consecrated to great men, after their death, derived its origin from Jacob's pouring oil on the stone of Bethel. See BETLOYS.

Bethel, Geography, a small Moravian settlement in America, on the Swetara river, in Pennsylvania, 14 miles from Mount Joy.—A township in Dauphin county.—Alfo, a township in Windfor county, Vermont, containing 473 inhabitants, N.W. of, and bounded by Stockbridge, and about 67 miles N.N. eafier of Bennington. Hence rises a small branch of White-river.—Alfo, a township in Delaware county, Pennsylvania.

BETHENCOURT, John de, in Biography, a Norman baron, in the beginning of the 15th century, obtained a grant from Henry III of Caffile, of the Canary islands, erected into a kingdom in 1341, by pope Clement VI. Having visited these islands in 1402, Bethencourt returned to them, and by alliance from Henry, conquered them, held them under the title of king, as a fief of the crown of Caffile, and tramitted the possession of them to his family for some generations. His pofterity settled in Spain. Although his conquest of these islands was not complete, Bethencourt is reckoned the first Christian who subdued the Canary islands, which before his time had been occasionally visited by freebooters. Robertson's Hill. Amer. vol. i. p. 54.

BETHENCOURT, James de, physician at Rouen, where he practiced with much reputation, towards the end of the 15th

and the beginning of the 16th centuries, is now only known by his treatise on the venereal disease, published in the year 1527, under the singular title of "Nova Penitentialis Quadrig-uma, nec non Purgatorium, in Morbum Gallicum, feu Venereum, una cum Dialogo aquae argentii et ligni guiae luctantium super dii morbi prelatura. Opus fructifera." Paris, 8vo. By his penitence, he means the strict regimen enjoined those who underwent the guiacum, or sweating process, for the cure of the les, and by the purgatory, the pains and torments endured while under the falfivation by mercury, for the fame purpofe. Though he treats of the method of curing by the guiacum, as well as that of mercury, yet he manifeftly gives the preference to the latter mode, which is laid down by him, Alfruc fate, in a more judicious manner, than it had been by any preceeding writer. He fays the difeafe was unknown to the ancients, and that it made its first appearance, or was first noticed in Europe, about the year 1.95. He does not consider it as imported from America, or the Weft Indies, by the Spaniards, but as procured from causes fimilar to thofe that occur the plague, and other infectious difeaces. Alfruc commends the work, but it has not obtained a place in Luitinus's collection of treatifes on the complaint. Alfruc de Morb. Gall. Haller. Bib. Med.

BETH-ENABRIIS, in Ancient Geography, a town of Peræa, into which the Jews, who fled from Gadara after it was taken by Vefpaian, retired, and which was forced by the tribune Placidus, before his complete reduction of Peræa.

BETHER, Mountains of, are mentioned in the Song of Solomon, ch. viii. 14. Some fuppofe Bether to be Bethoron, called Bether by Eufebius, and Bethara by Jofephus. Bether was taken by the emperor Adrian, in the rebellion of Barchochebas, (See Barchochebas.) Others will have it to be Betharis, between Cafarea and Difpolis; and others again Bether, mentioned in the LXX. (Jof. xv. 60.) among the cities of Judah. Calmet fuppofes it to be Upper Bethoron, or Bethora, between Difpolis and Cafarea. Eufebius speaks of Betharim near Difpolis, and when he mentions Bether, which was taken by Adrian, he fays, it was in the neighbourhood of Cafarea. Ec. Hill. i. iv. c. 6.

BETESDA, the name of a pool at Jerufalem, of which we have an account in the Gospel by St. John, ch. v. 1—7. It was called in the Greek λυξωρος, and in the vulgar "Piscina probatia," becaufe, as fome have fuppofed, the fheep of the facrifices, called in Greek περασσα, were washed in it; or, according to others, becaufe the blood of the facrifices ran into it. But neither of these fuppofitions is fatisfactorily proved. The fheep were probably washed as soon as they were brought in the adjoining market, from which they were driven into this pool, which alfo contained a fufficient quantity of water for this purpofe. The latter fuppofition could not poftibly have been realized; fince, in that cafe, the blood must firft have defcended, and afterwards ascended to this pool, as there was a drain or ditch between the pool and the temple, and a bridge over it for paffing into the temple. Hence Dr. Poecoke, who adopted the idea of the blood's running into the pool, was obliged to fearch for lower ground on the other fide of the temple, and to place it in a situation where it did not eft, as any one may fatisfy himfelf by adverting to the plan of the temple at Jerufalem. The situation of the fheep-gate, near which this pool, or bath, flood, was on the south-east wall of Jerufalem, and therefore a great part of the city lay between that and the temple, as the accurate Dr. Lightfoot has fhewn in his "Harmony of the Evangelists," p. 666. The appellation "Bethefda" has therefore been erroneoufly derived from בְּתֵלֶשׁ, domus effusis, the sink-houfe, or drain.
The etymology, therefore, of those who derive "Bethesda" from Ἱλαρός, ἱλαρός, the δήλος of mercy, is much more judicious and appropriate; because it expressed the kind design with which this bath was contrived, and the salutary purposes to which it was applied. The history informs us, that this pool had five porches, porticoes, or chalies, which might very reasonably have been the cause, notwithstanding its oblong figure, being on each hand of the entrance on the middle of one side, and three on the other sides. Dr. Lightfoot supposes, that the lepton itself might be in the form of a pentagon, and that those chalies might correspond in five facts. Mr. Maundrell (Journey, p. 157) who took a view of this pool, in 1696, informs us, that it is 130 yards long, 40 broad, and 8 deep, but without water; and that at the west end he found some old arches, then dammed up, which, though only three in number, were supposed to be the five porches, in which the lame, halt, and blind. This pool, he adds, is contiguous, on one side, to St. Stephen's gate, and on the other to the area of the temple. In these porticoes dictated and dedicated perfunctory lay, "waiting for the moving of the water," for at the time of a certain feast, which some have supposed to be the passover, and others the pentecost, or rather, according to the season, i.e. occasionally, at certain intervals of time, "an angel descended into the pool, and troubled the water; whosoever then first, after the troubling of the water, leaped in, was made whole of whatever disease he had." Some have supposed that the miraculous cure, recorded in this history, was referred to the feast of the particular lepton mentioned in the first verse of the chapter; and thus they account for the silence of Philo and Josephus with regard to this miracle. But those, who imagine that these waters had a fanatical quality on other occasions, think the silence of these Jewish writers to be of little importance; as they have omitted the mention of other more important occurrences in our Lord's history, which they had an opportunity of knowing; such as the variety and multitude of signal miracles which he performed in the course of his ministry. The majority of writers have regarded the cures wrought at this place as a banding miracle among the Jews, and yet they have been forprised that Josephus, in particular, should omit to mention a fact so honourable to his nation. Others have, therefore, conjectured, that the miraculous healing quality of these waters was a peculiar honor conferred on the persons appearing before the Son of God upon earth. To this purpose Dr. Doddridge in loc. after Calvin, of server, that God, to add the greater luster to his Son's miracles, as well as to shew that his ancient people were not entirely forgotten by him, had been pleased to bestow some supernatural cures at this place. With respect to the defeat of the angel into the pool, and the effect produced by his stirring the water, different hypotheses have been proposed. Grotius thinks, that the angel is said to have descended, not because he was ever seen to do so, but because the Jews were persuaded that God brought such things to pass by the ministration of angels; so that, from the violent motion of the water, and the effect produced by it, the presence of an angel was reasonably supposed. Dr. Hammond (in loc.) supposes, that the blood of the great number of facrifices, washed in this pool, communicated a salutary efficacy to the water, upon its being stirred up by an angel, or messenger, reputed for this purpose by the high-priest; which hypothesis Dr. Doddridge represents to be a philosophical, as it is unsupported by history and antiquity. Mr. Fleming (Chriology, vol. i. p. 13: 15:) in order to avoid the apparent difficulties of the literal interpretation, accepts the latter part of the third and the whole of the fourth verse, as a spurious addition of some ignorant monk in the 8th or 9th century; because that part is wanting in the Cambridge, or R-va's MS., and is written by a later hand in the margin of that in the French King's library, highly extolled by Erany in his "Harmony." But this passage is found in all the other most celebrated MSS. in the Syriac version, and in the other versions of the Polyglott. Kühler's observations, relating to the genuineness of this text, in the preface to his edition of Mill's New Testament, deserve to be considered. But with regard to the subject in dispute, it should be recollected, that the fourth verse, which makes question, implies, that the water, after being troubled, had a miraculous virtue, which extended only to the first that went in, and cured his disease, whatever might be its nature. Dr. Doddridge supposes the following solution of this difficulty; the greatest, as he acknowledged, that occurs in the history of the evangelists, and with respect to which none of the numerous writers who have replied to Mr. Woolton has given him satisfaction. He supposes this pool might be remarkable for more medicinal virtue attending the water; and this circumstance, together with its being so near the temple, where a bath was so much needed for religious purposes, may account for the fact: clefs, chalies erected around it. Some time before this passover, an extraordinary commotion had been probably observed in the water; and Providence so ordered it, that the next person who accidentally bathed here, being under some great disorder, experienced an immediate and unexpected cure. The like phenomenon, in some other dedicate cloister, was probably observed in a second commotion. These cures might happen periodically, perhaps every sabbath, for some weeks or months. This the Jews would naturally ascribe to some angelic power, so did afterwards the voice from heaven, (John xii. 29.) though no angel appeared. On account of their ingratitude to Christ for this miracle, and those wrought at the former passover, and in the intermediate space, that celestial visitant probably returned no more; and therefore, it may be observed, that though the evangelists spoke of the pool as still at Jerusalem, when he wrote, yet he mentions the defeat of the angel, as a thing which had been, but not as still continuing. This may account for the silence of Josephus, who was not born when it happened; and who, if he heard the report of it, would oppose it with hypothesis to fact, and recur to some indigested and unmeaning harmonies on the unknown force of imagination; or he secretly suspected it to be true, his dread of the miraculous, and his fear of confusing his Pagan readers with it, might as well lead him to suppress this, as to dispute the passage through the Red Sea, and the Divine voice from mount Sinai, in so mean and foolish a manner, as it is known he does. Besides, the relation which this fact bore to the history of Jesus, would make him peculiarly cautious in treating upon it, as it would have been difficult to handle it at once with decency and safety. The ingenuous and honest bishop Pearce, in his excellent "Vindication of Christ's Miracles," p. 68, &c., agrees with Dr. Doddridge in the most material circumstances of his hypothesis.

BETH-GAMILU, the house of the sovereign, or of the camel, a city of the Moabites, in the tribe of Reuben. Jer. xlii. 37.

BETJESHIMOTH, the house of definition, or, of position, or of denominations, a city of Reuben (Judg. xiv. 20.), afterwards passed by the Moabites. Josh. xxxvi. 9.

BETIL-EBAOATH, the house of or the town, a city of Simeon, (Josh. xix. 6.) sometimes called Lachish. Josh. xvi. 32.

BETILHEM, the house of bread, a city of Judah, (Josh. xvii. 7.) generally called "Bethlehem of Judas,"
to distinguish it from another of the same name in Zebulon. It is seated on the declivity of a hill, 6 miles south from Jerusalem, according to Eusebius and Jeron. It is likewise called "Ephratah," (Gen. xlvii. 7. Mic. v. 2.) This city was not very considerable either for its extent or riches; but it has acquired peculiar distinction on account of its having been the place of our Saviour's nativity. It was also the city of David's nativity. In and near this city travellers are shown the place where our Saviour was born, which is said to have been a cave south of the city, and belonging to the inn, or caravanserai, whither Joseph and Mary retired. Jeron informs us, that Adamin, in order to erase the remembrance of the place where Christ was born, planted over the cave a grove of tall trees in honour of Adamin, so that when the festivals of this infamous deity were celebrated, the holy-grotto echoed with the lamentations made in commemoration of Venus's lover. Here is also seen a large church built by St. Helena, in the form of a cross, and so lofty as to command an extensive prospect of the adjacent country. The roof is elevated, flat, and composed of cedar within, and leaded without. The nave is supported on both sides by two rows of marble pillars, each made of one piece, and 11 in a row, forming as it were five naves, separated from each other by those rows of pillars, on each of which is the picture of some saint. Over the pillars the wall is covered with mosaic work, on a gold ground. The marble which formerly surrounded the walls has been removed by the Turks for adorning their mosques. The three upper ends of the cross terminate in three semicircles, having in each an altar. Over the chancel is a fluted cupola, covered on the outside with lead, and within adorned with mosaic work. Adjoining to the church is the monastery of the Franciscans. The gardens are defended with strong walls; and through the chapel is a passage to a square cave, in which they lay the Innocents were buried. Beyond this are passages to the tombs of St. Jerom, St. Paula, and Eulochium, and of Eusebius of Cremona; and beyond these is a grotto or cell, called the school of St. Jerom, where he is said to have lodged when he translated the Bible. At the end of another vault or chapel, 12 feet wide and 40 long, whose floor is paved and sides lined with white marble, and roof adorned with mosaic work, now much decayed, is an arched cove, with an altar, having over it the picture of the nativity, and under it a vault, in the middle of which is a flar formed of many coloured stones, marking the place where they say our Saviour was born; and near this is the manger where they pretend he was laid, which is hewn out of a rock, and now flagged with white marble. See Mount Calvary, and Jerusalem.

Bethlehem is now called Bait-el-babam; which fee. The country in which it is situated is happy with respect to soil, air, and water. With the latter it is supplied by a low aqueduct, or stone channel, which formerly passed to Jerusalem. The "fons ignatus" is an exuberant spring; it is received successfully by three large cisterns, one of which is well preserved. In coming from the cisterns, and at a small distance, is seen what is termed the "delicius Solomonis," a beautiful rivulet, which flows murmuring down the valley, and waters in its course some gardens of excellent soil. The brinks of this brook are adorned with a variety of herbage. The convent at this place contains, under the same roof, the different tenets of Latins, Armenians, and Greeks. Brown's Travels in Africa, &c. p. 353.

We shall here observe, that no inconsiderable pains and ingenuity have been exercised to reconcile the quotation of the evangelist Matthew, ch. ii. 6, relating to Bethlehem, with the original text of the prophet Micah, ch. v. 2. The difficulty may be obviated, lays an ingenious writer, or at least the appearance of inconstancy removed, by a proper translation of the latter text. "And thou, Bethlehem Ephratah, art little in being among the thousands of Judah; for out of thee shall come forth unto me a ruler over Israel. That is, thou hast but little honour in being among the thousands of Judah, compared with that which will accrue to thee from giving birth to the Messias. Thus the LXX feem to have understood it. Forms of speech similar to this, οἰκίαν αὐτοίς, by no means the λέον for the greatest, are not uncommon. (See Homer. II. A. 177. Callim. Hym. Di. 33. Hym. Ap. 31. Eurip. Androm. St. &c.) This mode of interpretation is confirmed by Lightfoot from the Chaldee paraphrast; and seems to be preferable to that of St. Jerom, or of Dr. Pococke. The former, who has been followed by some others, is of opinion, that Matthew produced the passage in Micah historically, not as it was written by the prophet, but as it had been propounded by the priests to Herod, so that they should be accused of false reading, if that were the case. The latter, in his notes on the Porta Moos of Maimonides, thinks, that "Θϊυ", in Micah, rendered little in the English translation, has the contrary signification to its usual one of mean or little, viz., that of noble or illustrious, and for countenancing this conjecture he cites Jer. xviii. 4. and the Chaldee paraphrase upon that passage. Grothus, Olearius, and others, have proposed that the Hebrew text and the Greek LXX version should be read and translated by way of interpolation. Heb. "Art thou, Bethlehem Ephratah, the least among the thousands of Judah? No, out of thee shall he come forth to me, &c., i.e. I will raise him up, &c. of the Greek LXX. Art thou, Bethlehem, the house of Ephratah, the least to be among the thousands of Judah? No: out of thee, &c." The learned bishop Pearce has adopted this mode of translation; and in favour of it he urges, that the Hebrew word θϊυ, in Micah, rendered little, may be rendered the lefth, as it actually is in Judges, vi. 15. 1 Sam. ix. 21. Jerom. xlix. 26. and l. 45. He also observes, that both in the Hebrew and in the Greek of the O. and N. T. it is not unusual for a sentence to be underwooded by way of interrogation, though there is no mark placed at the beginning of the sentence, used in either of the languages for a mark of interrogation. To this purpose he refers for the Hebrew to 2 Sam. xviii. 29. 1 Kings. xxii. 7. Job ii. 10. xl. 11. Zech. viii. 6. and for the Greek to 2 Sam. xvii. 29. Matt. xxi. 3. Mark iv. 61. He adds further, that when words are thus used interrogatively, there is often at the end of them an anwver of Υς, or No, to be supplied in the sense, though it is not expressed in the words. This is very common with those who write in the Hebrew language, or with those, who, being Hebrews, write in Greek. In the N. T. the word, No, is to be supplied in 1 Cor. x. 19. 20. The same mode of speaking is found in 1 Cor. xii. 31. Acts viii. 31. and an inference, where Υς is to be supplied, is to be found in 1 Cor. ix. 20: From these remarks the learned prelate concludes, that, if this be the case, an interrogation with a No to be supplied as an anwver to it, is the same as a negative not put in interrogation; or, in other words, to ask whether any thing is the lefth, and to anwver No, as the Hebrew text and LXX version do, is the same as to affirm, that it is not the lefth, as Matthew does. Either of the above interpretations will effectually supercede the perplexity of St. Jerom, and the objections of Dr. Middleton, in his "Works," vol. ii. p. 59. See Wakefield's "New Translation of the Gospel of St. Matthew," p. 26. "Pearce's Commentary," vol. 1. p. 10.

Bethlehem, a town of the tribe of Zebulon, (Josh. xix. 15.) of obscure and unknown situation.
BETHLEHEM, in Geography, a town of the Netherlands, in Brabant. N. lat. 51° 2'. E. long. 4° 45'.
BETHLEHEM, See BETH.
BETHLEHEM, a town of America, in Albany county, New York, fruitful in pastures, and affording large quantities of excellent butter. By the late census of 1790, 358 of the inhabitants are females. — Alfo, a township in Berkshire county, Massachusetts, containing 261 inhabitants. It lies about 10 miles S. of E. from Stockbridge, and 130 from Boston, and borders on the Tyingham and Loudon. — Alfo, a township in Hudson county, New Jersey, situate at the head of the south branch of Raritan river, and containing 1335 inhabitants, including 21 slaves. — Alfo, a township in Litchfield county, Connecticut, joining Litchfield county on the north, and Woodbury on the south. — Alfo, a post-town in Northampton county, Pennsylvania, which is a celebrated settlement of the United Brethren of the Protestant Episcopal church, as they term themselves. It is situated on Lehigh river, a western branch of the Delaware, 53 miles northerly from Philadelphia, and 18 southerly from the Wind Gap. The town stands partly on the lower banks of the Manakes, a fine creek, which affords trout, and other fish, in a healthful and pleasant situation, and in summer is much frequented by gentry from different parts. In 1787, there were 60 dwelling-houses of stone, well built, and 600 inhabitants. Besides the meeting-house, this place has three other public buildings, which are spacious; one for the single brethren, one for the single sisters, and the other for the widows. In a house adjoining the church is a school for females, and since 1787, a boarding-school for young ladies, under the direction of the minister of the place, who also superintends the boys' school, kept in a separate house. Both these schools are in high repute, and much frequented. At the lower part of the town there is an hydraulic machine of simple construction, that raises the water from a spring to a reservoir, at the height of 100 feet, whence it is conducted by pipes into the several streets of the town. In this town are also a store, with a general assortment of goods, a large tan-yard, a grist-mill, a fulling-mill, an oil-mill, and a saw-mill, and on the banks of the Lehigh, a brewery. N. lat. 40° 37'. W. long. 75° 14'.
BETHLEHEM, Star of, in Botany. See ORNITHOGALUM.
BETHLEHEMITES, or Bethlehemites, in Church History, a sort of monks introduced into England in the year 1257, inhabited like the Domicani, except that, on their breal, they wore a far with five rays, in memory of the far or comet which appeared over Bethlehem at the nativity of our Saviour. They were cell at Cambridge, and had only one house in England.

There is also an order of Bethlehemites still subsisting in Peru, who have convents at Lima; one called of the incarulata, the other of our Lady of mount Carmel. These Bethlehemites came originally from the city of Guatemala in Mexico, where they were instituted by the venerable Peter Joseph of Betanour, a native of the town of Chalma, or Villa Fuerte, on the island of Teneriff, in 1625, for the service of the poor. After his death, which happened in 1667, his congregation was approved of by a bull of Clement X. in 1673, and in 1674, Innocent XI. in 1685, erected it into a community of regulars. Before this time it had paffed from Guatemala to Mexico, and from thence, in 1671, to Lima. In the city of St. Miguel de Pira, they took possession of the hospital of St. Ana, in 1676, and of that of St. Sebastian, in Truxillo, in 1629. Their probity and diligence in discharging these trusts induced other places to select them as directors of their hospitals, and among the rest, the city of Quito. The fathers of their order go bare-footed, and wear a habit of dark brown colour, nearly resembling that of the capuchins, whose order they also imitate, in not shaving their beards. On one side of their cloak is an image of our lady of Bethlehem. Every fifth year they meet to choose a general, which ceremony is performed alternately at Mexico and Lima.

The Bethlehemites, though outwardly of great simplicity, pass for the most refined politicians; infomuch as to be called the quintessence of the Carmelites and Jezuites. They are all friars. For their almoner they choose a peculiir friar, whom they hire, and who has no vote in the chapter.

BETHLEM, GABRIEL, in Biography, prince of Transylvania, was a descendant of a family of rank, but very small property, and attached to the reformed religion. By his valor he obtained the favour of Gabriel Battori; but having ingratiated himself with the Porte, in a visit to Constantinople, he obtained a force which enabled him to expel Battori, and to establish himself as prince or waivode, in 1613. He was afterwards led by ambition to extend his dominions, and under the advantage of an alliance with Frederic, the elector palatine, and newly declared king of Bohemia, he made an irruption into Upper Hungary, in 1619. Having reduced this country, he received the submission of Lower Hungary, and in his march towards Vienna he took Preßburg, and was acknowledged prince of Hungary. The affiance which was afforded him by the oppressed protestants, induced him to establish liberty of conscience throughout Hungary. At an assembly of the estates, he was declared king; but in consequence of a treaty concluded between him and the emperor, he renounced the title and dignity of king of Hungary, and was made in return prince of the empire, with the possession of two dukedoms in Silesia, and several caffleks and districts in Hungary. His refusals disposition however led him to violate the treaty, and, in 1624, he overran Hungary, till he was defeated by the imperial general, and obliged to take refuge in Caffovia. Upon this a treaty of peace was negociated, by which he renounced all pretensions to Hungary, and all connexions with the enemies of the house of Austria, and was invovled with several lordships in Silesia, and with authority over Transylvania during life. After this period he remained quiet; and falling into a droopy, died in 1629. He left legacies both to the emperor and grand seignior. Gaber married the daughter of John Sigismund, elector of Brandenburg. Mod. Univ. Hist. vol. xxvii. p. 2, &c.

BETH-MON, the house of habitation, or, of iniquity, in Ancient Geography, a city of the Moabites, in the tribe of Reuben. Jer. xviii. 23.

BETH-MARCHABOTHI, the house of chariots, or, of bitterness existing, a city in the tribe of Simon.

BETH-MAUS, a village of Galilee, between Sophonias and Tiberias, distant, according to Josephus, 4 itlades from the latter. Lightfoot supposes it to be the Beth-mat win of the Talmud.

BETH-NIMRAH, the house of the lapron, or, of rebellion, or, of bitterness, a city in the tribe of Gad. Num. xxx. 36.

BETH-OANANNA, or BETH-HANNUNAH, a town, according to Eusebius, 4 miles east from Doripolis. The name signifies, some remains of the word Neb, where the tabernacle continued for some time, in the reign ofSolah. 1 Sam. xxii. 1. According to Jerom, Neb was not far from Doripolis.

BETH-OGLA, the house of the lilies, or, of lilies, or, of bitterness, a city in the tribe of Gad. Num. xxx. 36.

BETHOANNABA, or BETH-HANANABA, a town, according to Eusebius, 4 miles east from Doripolis. The name signifies, some remains of the word Neb, where the tabernacle continued for some time, in the reign of Solomon. 1 Sam. xxii. 1. According to Jerom, Neb was not far from Doripolis.

BETHOGIELA, the house of the lilies, or, of lilies, the name of two places; one fixed by Eusebius, 8 miles from Gaza; the other by Jerom, 2 miles from Jericho. The Bethogiel of Eusebius is probably part of the tribe of Judah. Josh. xv. 26.

BETHOOLBA, or BETH-HOLLBA, belong to that of Benjamin. Josh. xvii. 24.
a BETH, or BETHRA, was otherwise called Julius, and was the birthplace of the prophet Joel. The inhabitants of Bethemide rebelled against Alexander Janneus. The town was taken, and they were sent captives to Jerusalem.

BETHONEA, or BETHANOVA, was situated 15 miles east from Carea, and was famous, according to Eusebius and Jerome, for its beneficial hot baths.

BETHORON, a town of Samaria. The Scriptures mention two cities of this name, the Upper and Lower, both belonging to the tribe of Ephraim (Joth. xxiv. 3, 5), and given by this tribe to the Levites (Joth. xxii. 22). They were both built by Solomon, grand-daughter of Ephraim (1 Chron. vii. 24.), and retrenched by Solomon after they had fallen to decay (1 Kings xi. 17, 2 Chron. viii. 5). Their distance from one another was about the breadth of the tribe of Ephraim; the Upper being in the north, and the Lower in the south of that tribe. The former was situated in the road from Constantinople to Antioch, and the latter was a little to the south of it, on the border of the tribe of Ephraim. The latter was named in the time of Josephus, grand-daughter of Ephraim (1 Chron. vii. 24), and retrenched by Solomon after they had fallen to decay (1 Kings xi. 17, 2 Chron. viii. 5). Their distance from one another was about the breadth of the tribe of Ephraim; the Upper being in the north, and the Lower in the south of that tribe. The former was situated in the road from Constantinople to Antioch, and the latter was a little to the south of it, on the border of the tribe of Ephraim.

BETH-PALATH, or BETH-PELETH, the house of deliverance, or of expulsion, a city in the most southern part of the tribe of Judah. (Joth. xv. 27.) Nehem. xi. 26. This city was surrendered to the tribe of Simeon.

BETH-PAZZEZ, the house of division, a city in the tribe of Issachar. Joth. xix. 21.

BETH-PEOR, or BETH-PHAGOR, the temple of Poor, a city of Moab given to the tribe of Reuben, (Deut. iv. 46.) where the idol Baal-Peor was worshipped. Num. xiv. 3. It was situated on the other side of Jordan, opposite to mount Peor, or Phagor.

BETHPHAGE, a village at the foot of mount Olivet, between Bethany and Jerusalem, and about 15 furlongs from the latter. See Bethany.

BETHSaida, a city of the half tribe of Manasseh, near the desert of the same name. It was situated, according to Pliny, on the east, or on the Arabian shore of the lake of Gennesareth, in Batanah, and the lower Gaulonites, according to Josephus, at the beginning of the mountainous country. It was a place of fishing, according to Bochart, and a place of hunting, says Dr. Lightfoot, so called because it stood near Naphthal, where were many deer. Gen. xlix. 21. It was raised by Philip, the brother of Herod the tetrarch, from the rank of a village to the honour of a city, and called Julias, in honour of the emperor's daughter. It seems to have been different from Betharamphita, called also Bethsaida Julian. See Betharamphita. This latter Bethsaida, which was on the western shore of the lake of Gennesareth (Mark vi. 45, viii. 22), was one of the cities against which Chrust denounced a woe (Matt. xi. 21) on account of its impudence and impiety, after the mighty works which he had performed in it. It was also the city where three apostles dwelt, viz. Philip, Andrew, and Peter. John i. 45.

BETH-SHALISHA, or BAA-salissa, a town of Palæstine, in the canton of Timna, 15 miles north of Diospolis, according to Eusebius, and south-call of Antipatris.

BETHSAN, or BETHSEAN, a town of Samaria in the half tribe of Manasseh, upon the borders of Galilee, on this side Jordan, and about half a league from it. It was the capital of a district of the same name, extending to Peraza. In 2 Maccabees xii. 29, it is placed 600 stadia, or 75 miles from Jerusalem. Josephus says, that it was the largest town of the Decapolis, and that it was 120 stadia, or 15 miles from Tiberias. It was upon the walls of this city that the Philistines, after the battle of Gilboa, hung the bodies of Saul and Jonathan, which were removed in the night by the inhabitants of Jabesh-Gilead, and honourably interred, under a grove of oaks near the city. (1 Sam. xxxi. 19, &c.) In process of time it was called Scythopolis, which name it derived from the Scythians, who, in the reign of Josiah, king of Judah, about 675 years before Christ, made an incursion into Palestine, and left a colony at Beth-far, Steph. Byz. and Pliny call it Nysa. Bryan (Anal. Myth. vol. iii. p. 415.) deduces its name Bethania, i.e., house, from Beth, house, or templet, and san, an ancient denomination of the sun, under which it was worshipped; and he supposes, that he had a temple in this city, to the walls of which the body of Saul was interred. Images of the sun, under the appellation of Zanes, were peculiar to Sparta. This city, according to him, was built by the Cuthite Ophite, or Hevites, some of whom settled in that part of Caraea, called Galilee. As Ophite, they worshipped the sun under the figure of a serpent, and they were foppised to be Helladse, or offspring of the sun. The serpent they styled fan or san; but as the Hebrew fion signified also a tooth, the Grecians instead of saying that the Sparti had their origin from the serpent's teeth, the sun, made them take their rise from the teeth of a serpent.

BETH-SHEMESHE, the house of the sun, or of service, a Levitical city in the tribe of Dan, or of Judah, for it is ascribed to the one and to the other; distant, according to Eusebius, 10 miles from Eleutheropolis, in the way to Niciporis, or Emmaus. 1 Sam. vi. 12. Joth. xiv. 41. 1 Kings iv. 5.—Allo, a city of the tribe of Issachar. Joth. xix. 38. —Allo, a city of the tribe of Naphtali. Joth. xix. 38. Judg. i. 33.

BETH-SUR, or BETH-ZUR, the house of the rock, or of the band, a city with a strong fortres, seated on a high rock, in the tribe of Judah (Joth. xv. 38) distant, according to Eusebius, 29 miles from Jerusalem, on the road to Hebron. It was fortified by Rehoboam, to keep the Danites in awe. (2 Chron. xi. 7.) When it was besieged by Lycaon, under Anti chus. The son of Antiochus Epiphanes, with an army of 60,000 foot, and 5000 horse, Judas Maccabaeus came with 10,000 men to its succour, and obliged Lycaon to raise the siege, and defeated his army. B. C. 165. 1 Maccab. iv. 28. vi. 7. Bryan derives the name of this city from both, temple, and fur, a name given to the fur, under which appellation he had temples and worship.

BETH-TAPPUA, the apple or orchard house, a city of Judah (Joth. xv. 53.) said, by Eusebius, to be the last city of Palæstine in the way to Egypt; 14 miles from Raphia.

BETHUL, or BETHUEL, a city of Galilee, belonging to the tribe of Simeon, (Joth. xix. 4.) probably the same with Bethulia, represented by Sozomen in his history, as belonging to the inhabitants of Gaza, well-peopled, and adorned with several temples remarkable for their structure and antiquity; particularly a pantheon, or temple, dedicated to all the gods, seated on an eminence made of earth, which commanded the whole city. Jerome, speaking of Bethulia, says, that from thence to Pelium was a short journey of five days. Among the bishops of Palæstine, we find one of Bethulia, Roldan, I. i. 35. p. 268. This was probably the name with Bethulia, celebrated on account of its siege by Holofernes, at which he was killed by Judith, Judith, vi. 7.

BETHUNE,
BETHUNE, in Biography. See Sully.

BETHUNE, in Geography, a town of France, and principal place of a district, in the department of the Ain's, situated on a rock in the little river Dixtre. The number of inhabitants in the town is estimated at 35,000, and in the canton at 15,952. Its territory contains 125 square kilometres, and 17 communes. It formerly belonged to the counts of Flanders, but being taken by Gaston Duke of Orleans, in 1629, it was returned to France by the peace of Pyrenees, and the fortifications were repaired under the direction of M. Van-son. In 1710, it was captured by the allied army, under Prince Eugene and the duke of Marlborough, and restored to France in 1715, at the peace of Utrecht. This city and the castle are together of a triangular form; but the castle is in a ruinous state. The towers are near, and the streets are narrow, but it contains several churches and convents, and a large handsome square. In the main body, near the city, several canals are cut for the convenience of watering grain. N. lat. 49° 52'. E. long. 2° 43'.

BETIS, a river of France, in Upper Normandy, in the county of Caamp.

BETLA, a town of Asia, in Armenia, Persia.

BETLIGOA, in Geography, a town of Poland, in Saratoga, 10 miles S.S.E. of Reference.

BETH Quar, a town of Africa, in the kingdom of Coaug.

BETLIO, a town of European Turkey, in the Morea, 22 miles north of Missol.

Propagation and Culture. All the sorts may be propagated by seeds, or parting the roots: they require a sandy situation and a moist, stiff soil. The best time for transplanting and separating the roots is in autumn, but the seeds should be sown in the spring upon a sandy border; and they will need no other care besides keeping them from weeds, and thinning them when they are too close. Martyn's Miller. Woodville Med. Bot. vol. ii. p. 79.

*Betonica Aquatica*. See *Scrophularia*.

*Betonica Pauli*. See *Veronica*.


*Betoulo*, in *Geography*, a small island in the Grecian Archipelago. N. lat. 37° 1'. E. long. 23° 33'.

*Betony*, a town of Poland. In Samogitia, 16 miles west of Rofienne.

*Betchow*, a town of Bohemia, in the circle of Cracau, 9 miles N. W. of Cracau.

*Betse*, or *Betsetter*, a town of Hungary, in the county of Beth, feated on the Theis, near its influx into the Danube.

*Betthomtem*, in *Iran*, a mutual promise or com- pact between two parties for a future marriage. The word imports as much as giving one's tooth; that is, true faith, or promise. Betthomtem amounts to the same with what is called by civilians and canonists frequens, or epiqfren; sometimes deprecation; and by the French fiancées. Betthomtem is either solemn, made in the face of the church, or private, made before witnesses out of the church. To betthomtem by giving arrebs, or earnest, is called, by *Middle Age Writers*, subbarrere. In Russia, the betthomtem is performed with ecclesiatical rites, generally eight days previous to the marriage, and is indissoluble. During this interval, the bride is only visited by the bridegroom, and the girls of her acquaintance, who anoint her with finging. On the last evening, the young women bring the bride into the hot bath, where they plait and tie up her hair, finging at the same time ballads de- scriptive of her future happiness. Among the ancient Jews, the betthomtem was performed, either by a writing, or by a piece of silver given to the bride, or by cohabitation and consummation. This latter engagement, according to the Rab- bias, was allowed by the law (Deut. xxiv. 1.), but it has been widely forbidden by the ancients, on account of the abuses that might happen, and for preventing clandestine marriages. After the marriage was contracted, the young people had the liberty of seeing each other, which was not allowed them before. If during this time the bride should trepasis against that fidelity she owed to her bridegroom, she was treated as an adulteress. (Seld. Usur. Heb. i. ii. c. 1.) The nuns of the Annunziada hold an annual feast, in honour of the desposition, or betrothment of the Virgin Mary to Joseph.

*Betta*, in *Geography*, a town of Aftic Turkey, 70 miles S.S.W. of Erzerum.

*Bettembourg*, the chief place of the canton, in the district of Luxemburg, and department of Forêts; containing 812 persons: the number in the canton amounts to 10,139. The territory comprehends 290 kilometres, and 72 communes.

*Bettern, Thomas*, in *Biography*, a famous actor, the English Roficius of his time, was the son of an under cook in the household of king Charles I., born in 1635, and after a tolerably liberal education, apprenticed to a book-feller. This book-feller, being the publisher of sir William d'Avenant, introduced Bettern into an acquaintance with him, and by this means he was brought upon the stage, under his patronage, about the year 1656 or 1657. After the refor- mation, he engaged in the company called the Duke's company, formed in virtue of a patent granted to sir William d'Avenant, which acted at the theatre in Lincoln's-inn-fields. Bet- tern, whole talents had attracted notice, was lent to Paris, by command of Charles I., that he might acquaint himself with the French stage, and contribute on his return to the improvement of the English theatre. A new theatre was accordingly built for d'Avenant's company, in Dorset gar- dens, and the exhibitions conducted in it were attended with great success. In 1670, Bettern married a Mrs. Sanderfon, who excelled as an actress on the fame stage, and who contributed, in concurrence with his own exertions, to procure for them not only a comfortable subsistence, but such a surplus as might have served to maintain them in their advanced age. After the coalition of the two companies above mentioned, which took place about the year 1685 or 1686, the merit of Bettern shone with unrivalled lustré; and he ac- quired the honour of being at the head of his profession. From the account which Cibber has given of his dramatic talents, it appears that no actor entered with a more dis- criminating judgment into his part, or posed a greater com- mand over his audience. The leading style of his acting was the grave, dignified, and forcible. His voice, perton, and aspect concurred in giving more spirit to terror than to the softer passions, and Cibber adds, in bearing ample testimony to his merit; "I never heard a line in a tragedy come from Bettern, wherein my judgment, my ears, and my imagi- nation were not fully satisfied." His powers, however, seem to have been restricted to a particular walk in tragedy; and Othello, Hamlet Bruttus, and Hotspur, are enumerated among his striking parts, "and in these the range is from calm dignity to fiery impetuosity."

With respect to his private character, we are told that it was, like his theatrical, manly, decent, and elevated. Having acquired a moderate property, he embarked it, by the advice of a friend, in a commercial project, in which it was lost; and yet that friend's daughter, when she became an orphan, was maintained by him as if he had been his own. In consequence of some disputes which occurred, he was compelled by flaggy-tyranny, to quit the company, with which he had been long engaged; and a new play-house was opened by his efforts in Lincoln's-inn-fields, in 1695. The growing infir- mities of advanced age made it necessary for him to withdraw from the stage, and to acquiesce, which he did with self-poiseffion and serenity of mind, in the narrow circumstances of
BETULa, AldER, And BIRch, in Bot any. Lin. Gen. n. 1052. Reichl. 1147. Schreib. 1419. Tourn., 350. Juff. 409. Gartn. t. 90. Chais and Order, moroea listanica. Nat. Ord. ammianee. Gen. Ch. * Male flowers in a cylindric amert. Cal. amert imbricate on every side, loose, cylindric, confiding of three-flowered feales, in each of which are two very minute feales, placed at the tides; three equal florences fixed to the disk of each calyx. Perianth in each one-leaved, small, entire, three or four-parted; diviitians ovate, obtuse. Cor. none. Stam. filaments to each four (or three, or two), very small; authors twin. * Female flowers in an amert of the same plant. Cal. amert cylindric or roundish, imbricate; with two-flowered feales. Cor. none. Pet. germ proper, ovate, compressed, very small, two-seeded; styles two, tetacces; stigma simple. Per. none; amert under each disk cherishing the seeds of two florets Seed solitary, ovate. Obs. Betula T. has the fruits in cylindric aments; feales three-forked; seeds with a double lateral wing. Alnus T. has them in a roundish fructose; feales roundish; seeds angular, without wings.


Species. 1. B. alba, common birch-tree. Lin. Spec. 1395. Hudif. Angl. 416. Withei. 1657. Ger. 1293. Emac. 1478. Park. 1468. Rainhill. 1410. Hunt. Evelyn. 218. Varieties. B. pendula, weeping-birch. B. alba Dakcarlic. Lin. Suppl. 416. "Leaves ovate, acuminate, ferrate." The common birch-tree is known at first sight by the fluffy colour of its bark, epidermis, or thin outer covering of the bark; the smallness of the leaves in comparison with other timber-trees; and the lightness and airiness of its whole appearance. The branches are alternate, very flexible, covered with smooth brown or rufset, and smooth bark, generally dotted with white; the leaves alternate, bright green, smooth, shining beneath, with veins crossing like the meshes of a net; the petals about half an inch long, grooved above, and having at the base ovate green glands; the male amers or catkins, which have their seeds tipped with brown, appear in autumn at the ends of the twigs, abide in winter, and unfold their flowers, when the female catkins appear in spring at the ends of the shorter branches, on pedicles near a quarter of an inch long; the blossom is egg-shaped, concave, and green; the germ, two or more, are compressed; and the styles and fringes are reddish. A native of Europe, from Lapland to the subalpine parts of Italy; and of Asia, chiefly in mountainous situations; found with us in woods and noild hedges, and flowering in April and May.

Evelyn observes, that although the timber of birch is the worst of any, it has its various uses: as for the farmer's ox-yokes, for hoops, small serews, paniers, brooms, wands, bavin-bands and wythes for faggots, and formerly for arrows, bolts, and shafts. It served also for ditches, bowis, laddles, and other domestic utensils. In New England, he says, our Northern Americans made canoes, bowis, buckets, baskets, kettles, dishes, &c. of this wood, which they curiously joined with threads made of cedar-roots; and out of an excerulence from the bore, boiled, beaten, and dried in an oven, they made excellent spunk or touchwood, and balls for playing. They also constricted it pinnaees, which they ribbed with white cedar, and covered with large flanks of birch-bark, fewed with threads of spruce roots, and pitched: to which use it was anciently applied even in Britain. It served also for fuel; birch-trees having been dug in many of the moors of the west riding of Yorkshire, which burn and flame like fir and candle-wood; and Pliny says (N. H. I. xvi. c. 18)
c. 18.) that the Gauls extracted a kind of bitumen out of birch. The inner white cuticle and silken bark, which strips off of itself almost yearly, was anciently used for writing tables, before the invention of paper; and with the outward, thicker, and coarser part are covered divers houfes in Rustia, Poland, and other northern terrains, instead of flutes and tile; and in Sweden, the poor have even ground the bark to mingle with their bread corn. From the accounts of more modern writers, we learn, that the wood of birch; which is very white, is used for women's shoe-edges and patterns, and for packaging-casks. It is planted along with hazel to make charcoal for forges; and in the northern parts of Lancashire, and in the vicinity of London, beamfs are made with its twigs, for home consumption, and also for exportation. The twigs smeared with bircholine are also used by the tlowards; and in Norway they are given to horses, when fodder is scarce. The bark is serviceable in dyeing wool yellow, and in fixing fugacious colours; for which purpose it should be used dry, and trees of 18 or 20 years growth should be disbarred at the time when the sap is flowing. The Highlanders of Scotland use the bark for tanning leather, and for making ropes; and they sometimes burn the outer rind instead of candles. In Norway it is dried, ground, and mixed with meal, and boiled up with other food for swine, who thrive much upon it. The outer bark, as it escapes putrefaction in the dampk places, is employed for covering the roofs of houses, ufed on a layer of turf three or four inches thick. The inner bark is applied by the Norwegians for tanning hides, for fishing-nets, and for fials. With the fragments dexterously braided the Laplanders make shoes and bסקets, and they ufe large pieces of it for outer garments to keep off the rain. In Kamtschatka, they convert it into hats and drinking cups. The wood was formerly ufed by the Scots Highlanders for their arrows, but it is now employed by the hoop-binders and wheelwrights, and for a variety of rustic implements. The turner ufes it for trechers, bowls, ladies, &c.; and that which is of a proper size serves for gates, rails, &c. In France it is generally ufed for wooden fences. It irfords good fuel, and some of the bock charcoal; and the foot is a good lamp-black for printer's ink. The small branches serve the Highlanders for hurdles, and for fide-fences to their houses. Moxa is made of the yellow fungous excrescences of the wood, which sometimes uveu out from the fissions. The leaves afford good fodder to horses, kine, sheep, and geats. The seeds are the favourite food of the falken; and the tree supplies a variety of infects with food.

The usual sap of the birch-tree poffefles a faccharine quantity, and has been ufed both in a fermented and unfermented state, as a wholesome diuretic wine. It was formerly in great repute againfe all nephritic disorders; but has been discarded from the modern practice. Van Helmont extols a drink prepared with this juice, daceus-keads, and brook-line. Mr. Boyle fays (Work, Abr. vol. i. p. 51, vol. iii. p. 338.), that he has seen extraordinary medicinal effects of the juice itself, even when other remedies failed; and accordingly he provided himself with a quantity of it every spring. He fays, it may be eafily prepared by pouring a little oil on the top of it, or by dilution; but the belt way is to impregnate it with the fumes of sulphur. The juice has been ufed for wine, and also for brewing, being in the latter cafe employed in lieu of water; and it is faid Phil. Tranf. N. 46. p. 563.), that a barrel of malt will afford as much, and as good ale, as four with common water. In order to obtain this juice, let holes be bored in the bodies of the larger trees, about the beginning of March, while the sap is rising; and before the leaves fliet out, and in these holes fix foffets of elder flicks, cleared of their pith, placing vesfels under them to receive the liquor. A large tree may be tapped in four or five places at a time; and from several trees may be drawn in this way several gallons of juice in a day. If a fufficient quantity be not obtained in the day, what has been gained may be referved by bottling it up closely till more be procured; but the sooner it is boiled the better. It has been observed, that in the space of 12 or 14 days as much juice may be obtained from one tree, as will outweigh the whole tree, body, and roots. And Evelyn, in his "Sylva," (Hunter's edition, p. 234.) informs us, that a great difference is found between the efficacy of that liquor which diffus from the hole, or parts of the tree nearer the roots, and that part which flows from the higher branches; the former being more crude and watery, and the latter more pure and refined. When the sap is obtained, boil it as long as may fume arises, and well skim it during the operation. To every gallon of liquor add four pounds of sugar, and boil it afterwards half an hour, well skimming it; then put it into an open tub to cool, and when cold turn it into a cafe. When it has done working, hang it up clofe, and keep it three months; then either bottle it off, or draw it out of the cafe, when it is a year old.

The birch, independently of the ufe to which its various parts have been applied, merits culture in parks and ornamental woods for the sake of variety; its fragrant flem, smooth and white bark, and neat foliage, exhibit a pictruelike appearance, when properly placed here and there in the openings, so as to show the foliage and hanging down of the twigs, or within to display its fibly bark through the glom; and, besides, its fragrant fmeu after rain, judifily entitles it to a place in the wilderfens. Moreover, the birch-tree deferves cultivation, because it will grow to advantage upon barren land, where better trees will not thrive. It will flourifh in moist fpunge land, in dry gravel and fand, with the surface is shallow; and upon ground, producing only moss, thefes trees have succeeded so well, as to be fit for cutting in ten years after planting, and to yield a coniderable profit at a fmall expence. Of this species there are feveral varieties. In the variety 8, the twigs of young trees are ereb, but being lender and plant, they are apt to become pendent with age; and hence proceeds a variety no lefs beautiful than the weeping willow. n, is a remarkable variety found in Dalecarlia, and defcribed as having leaves almost palmate, with the fegments toothed. Other varieties of a trifling nature, with small differences in the shape of the leaves, are mentioned by Linnæus in his Flora suecica.

2. B. nigra, black Virginia birch-tree. Lin. Spec. 139. Reich. 4. 126. Gard. frut. 2. 54. t. 90. Grun. Virg. 188. 146. Rauv Dendr. 12. n. 2. Ait. Hort. Kew. 3. 336. "Leaves rhomb ovate, acute, doubly ferrat, pubifcent underneath, entire at the base; scales of the frutules villofe, segments linear, equal." This species being of foreign growth, is propagated for wilderfens and ornamental plantations; but as it now begins to be more common, it is to be hoped that it will soon make a figure among our forest trees. It is equally hardy with our common birch, and attains to a much greater magnitude, as it grows to upwards of 60 feet in height. The branches are fptoe, and more sparingly set on the trees than thoee of the common fort. The leaves have their larger ferratures more deep and remote, besides several very small, fime, crowded ones; they are broader, grow on long foot-Halks, and add a dignity to the appearance of the tree. The twigs are pubifcent, and the petiules villofe. A native of Virginia and Canada; and introduced into Kew gardens in 1736, by Peter Collifon, L.Iq.

It is very defirable in pleafure-gounds, as it is the firft tree in the spring which presents us with leaves, which are of a light
BETULA.

Light and lively green. Its white bark makes a beautiful variety, when intermixed with other trees. It is said to be the most useful tree in North America for building both of houses and boats; and will grow will in any soil or situation, whether wet or dry; and it may therefore be planted in places where few of other trees will thrive, and much deserves cultivation. There are several varieties of this species, differing in the colour, size of the leaves, and shoots; such as the broad-leaved Virginian birch, the poplar-leaved Virginian birch, the paper birch, brown birch, &c.

3. B. lamia, Canada birch. Lin. Spec. 1394. Reich. 4. 126. Gross. Virg. 115. 1. 146. "Leaves cordate, oblong, acuminate, ferrate." The leaves are smooth, very hard and shortly ferrate. The female catkins are ovate, sessile, with acuminate entire scales. This species grows to more than 60 feet in height. The liquid flowing from its wounds is used by the inhabitants of Kamtschatka without previous fermentation; with the wood, and also with the bark, which is very light, tough, and durable, they construct hedges and canoes; and they convert the latter into food by filleting it off when green, and cutting it into long narrow pieces, like "vermicelli," drying it, and stewing it with their caviar. It was cultivated by Mr. Miller in Kew garden in 1739. The varieties differ in colour, and are distinguished by the names of duskly Canada birch, white paper birch, poplar-leaved Canada birch, low growing Canada birch, &c.

4. B. secta, smooth dwarf birch. Lin. Spec. 1394. Reich. 4. 127. Hudson. Angl. 416. Wither. 2. 207. Hill. Helv. i. 1629. Fl. Dan. t. 97. Pallas Rofs. t. 40. D.-G. Fl. Lapp. 1. 4. Light. Scot. 575. t. 25. "Leaves orbicular, crenate, or circular, folioloosed." An upright shrub, seldom rising above two or three feet high, with a hard, thick trunk, and broad, rough bark, resembling that of the ulmus campaginea; branches expanding, flat, frutiferous, tapering, woody, somewhat gummy at the ends; leaves either broader than they are long, commonly three from each bud, but frequently five and alternate, generally entire at the base, folioloosed often pinnate; catkins about half an inch long; spikes purple. A native of the northern parts of Europe, and of the Alps; grows on mountains and wet banks in Scotland; and flowers in May. Here it is planted for the sake of variety, but is of no use; however, Linnaeus says, that it is very serviceable in the economy of the Laplanders, affording them timber, when they live on the mountains, feed for their flocks, which they are obliged to keep constantly in their way to feed them from the forest; and, covered with the horns of the rein-deer, forming their beds. The seeds are the half of the stamens, which supplies a considerable part of the forest sauce. The moose also, regard it, which they consider as an efficacious remedy in all painful diseases. The leaves, according to Linnæus, dye a yellowish red that is afforded by the B. secta.


wedge-form, very obtuse, gluttonous; axils of the veins villous underneath." The common alder, which appears generally as a shrub, sometimes grows to the height of 95 or 40 feet. The bark is blackish, and in old trees full of clefts; the wood is red and brittle; the leaves are of a dark green colour, and roundish figure, crenate, smooth, villous to the touch; the petals grooved above and near an inch long, with lanceolate blunt stipules at their base; the male catkins are cylindrical, appear in autumn, and continue to the spring; the females are of a short conical form, like a small fir cone. Many botanists have separated the alder from the birch; but Linnaeus, in his latter works, has joined them in the same genus. Garrick prefers them distinct, alleging that they differ not only in the fruit, but in the flower. A native of Europe, from Lapland to Gibraltar; and of Asia from the White sea to Mount Caucasus, in wet and boggy grounds, and on the banks of rivers; flowering with us in February, March, and April. The varieties of this tree are the long-leaved American alder, the white alder, the black alder, and the dwarf alder. The half with a round ferrate leaf, grows naturally on the Alps and Apennines; it is a very humble shrub, seldom rising more than a foot high, with its branches always trailing on the ground. The first, or long-leaved alder from America, grows to 30 feet in height, and deserves a place in all plantations. The branches are slender, smooth, numerous, and dark brown or purple; the leaves are long, and free from the charnicles of the common sort; and sometimes continue on the tree even in December, so as to give it the appearance of an ever-green.

The wood of the alder is valuable for piles, pumps, sluices, and in general for all works intended to be constantly under water. It is said to have been used under the Rialto at Venice; and we are told that the mortars about Ravenna were piled with this timber, in order to serve as the foundations of buildings. For this purpose it has been much cultivated in Flanders and Holland. It serves also for many domestic and rural usages, as for cart-wheels, spinning-wheels, mill-vehicles, bowls, tripods, small trays, trenchers, and other turnery ware, troughs, handles of tools, clogs, patteus, and wooden hoes. The roots and knots furnish a beautiful veined wood for cabinets; and the Scotch Highlanders often make chairs of it, which are very handsome, and of a colour of mahogany. The wood that has lain in hogs is black like ebony. It is generally planted for coppe wood, to be cut down every ninth or tenth year for poles. The branches make good charcoal.

The bark is used by tanners and leather-dressers, and also by fishermen for flattering their nets. This and also the young shoots dye yellow, and with a little coppers a yellowish grey, useful in the demiatins and shadows of cloth in tapestry. The shoots cut in March dye a cinnamon colour, and a fine tawny, when dried and powdered. The youth wood yields a dye of the colour of rapped-fur. The catkins dye green. The bark is used as a base for black; can ounce of it dried and powdered, and boiled in the quarters of a pint of water, with an equal quantity of log wood, with solution of copper, tin and bismuth, six grains of each, and 10 drops of solution of iron vitriol, will dye a strong deep "Le de Paris." The leaves have been sometimes employed in tanning leather. The Lappiards chew the bark, and dye their both garments and with their tallow. The whole tree is very alluring.

The alder grows in hedges by the sides of streams and ditches, and in all wet and marshy soils, and keeps up the banks; but if it be planted in a low meadow, it is said that the ground about it will become boggy; whereas, if it be planted, the roots of which penetrate a great way, and run

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near the surface, the ground will become firm and dry. The growth of grass is not materially obstructed by the shade of alder. In the highlands of Scotland, near Dunoon, Mr. Pennant says, the boughs cut in the summer spread over the fields, and left during the winter to rot, are found to answer the purpose of a manure. In March the ground is cleared of the decayed parts, and then ploughed. The fresh gathered leaves are covered with a glutinous liquor, which some people throw upon their floors to destroy fleas; the fleas entangling themselves in the tenacious liquor, as birds do in bird-lime. This tree affords food to many kinds of moths, and other insects. Horses, cows, goats, and sheep, eat it; but swine refuse it. The tongues of horses who feed upon it are turned black; and some persons suppose that it is not wholesome for them.


14. B. davieti. Pallas it. 3. 234. t. kk. f. 4. ab. fl. ros. 60. t. 39. Gmel. Sib. 1. 157. & 2. "Leaves ovate; acuminate, serrate, hairy on the nerve." Scarcely distinguishable, when young, from the common birch, except by the leaves, not growing so tall, and the trunk not exceeding a foot in diameter; bark greyish, clef longitudinal, and divided into brown scales, as if burnt; branches more subdivided and upright; leaves harder, commonly smaller, on shorter petioles; strobiles lanceolate, grey, subpubescent, deciduous; male catkins at the end of the twigs of the preceding year, two or three together, larger than those of the common birch; females from the same twigs lateral, thicker, with larger, and more rounded scales; the seed larger, surrounded by a narrower membrane; differing from the black American birch by having smaller strobiles, and leaves less thick and never doubly serrate. The wood is hard, yellower than that of the common forest, and in old trees marked with brown and grey towards the middle; tougher, and therefore more fit for cart-timber and the use of the wheelwright; also employed in making charcoal. A native of Dauria.

15. B. fruticosa. Pallas it. 3. App. 758. n. 133. t. kk. f. 1, 2, 3. fl. ros. 6. 2. t. 40. A. D. C. Gmel. Sib. 1. 157. var. 3. 1. 36. f. 2. "Leaves rhomboid-ovate, equally serrate, smooth." Always shrubby, rising with several stems from the same root, in boggy places not an inch thick, nor higher than a man's stature, but on mountains attaining the thickness of the human arm, and growing to a much lofter height; much branched from top to bottom, and of a very different habit from the common birch; the cuticle ash-coloured with transverse striae; the wood not so white, and waving transversely; the twigs almost covered with little resinous dots found more or less in the other species; buds more copious and always alternate; two leaves commonly from the same bud, softer than those of the common forest, and deeying sooner; having three seeds to each scale, of the same size and form with those of the B. nana. Abundant in marshes and on rocky mountains, and in the cold subarctic regions of eastern Siberia, especially towards the lake Baikal.

Propagation and Culture. The birch tree may be cultivated either by young plants procured from the woods where they naturally grow, or by seeds carefully gathered in autumn, as soon as the scales begin to open, otherwise they will drop and be lost. As these seeds are small, they should not be buried above a quarter of an inch deep in the ground. Mr. Miller recommends autumn as the best season for sowing them; but Mr. Boutecher directs to spread the seeds thin on a floor till dry, to mix them with loofe sand, and to keep them in an airy place till the beginning of March, when they should be sown on fresh light sand, trampled or dug the preceding autumn, made very loofe, raked fine, and divided into beds three feet and a half wide. It is needless to throw any earth over them; but in dry and frosty weather, a small quantity of peatial haulm may be thrown over them for three or four weeks, till the seed begin to vegetate. The ground should then be kept clean, and three or four gentle waterings may be given at noon in April, and repeated to the middle of June in mild evenings. In the following March they may be removed into the nursery, and planted in rows two feet and a half distant, and ten, or twelve, or eighteen inches asunder. Here they may remain two years, or, in cafes where they make little progress, three years; cutting after the second year's growth such as are least thriving or crooked, close to the ground in March. Mr. Miller recommends
to sow the seeds in the frame, allowing that they will thus thrive better than when exposed to the full sun. In all places where large trees, their seeds fall, and the plants spring up without any previous care. If these wild plants are taken up without any injury to the roots, they may be transplanted into any ground, with little or no preparation; where the land will admit of the plough, it will be best prepared by a crop of corn. In the spots where they are to stand, it will be sufficient to level the soil with a spade or mattock; and they may then be let into holes capable of receiving their roots, which should be covered with earth attached closely to them. After they have taken root, they require no further care. Hedges being kept clear of weeds, which may be cut down two or three times in a summer for the first two years; and afterwards the plants will be strong enough to keep the weeds down, so that they can receive no injury from them. These plants may be set any time from the middle of October till the middle of March, when the ground is free from frost; but in dry land autumn is the best season, and for a month later spring is preferable. The distance at which they should be placed is six feet square, that they may form cover the ground, and that by standing close, they may draw each other up; for situations that are much exposed, if they are not planted close, they will not thrive well. If the plants take kindly to the ground, they will be fit for cutting in about ten years; and afterwards, they may be cut every fourth or fifth year, if they are merely destined for the窄 rude making, but if they are intended for hedges, they should be cut after every year or every tenth year.

At the birch is native of Britain, it suits itself to a field of any kind. It will thrive extremely well on barren land, whether it be wet or dry, sandy or stony, marshy or boggy. It is fair-stalk, and will come up in places where hardly any other tree will grow. It may be cultivated at a moderate expense, and being easily disposed of to the broum-makers, hops breeders, turners, and for purposes of husbandry, it will yield a considerable profit.

The second and third species, or the American forts of birch, may be propagated by seeds in the same manner as the first, and are equally hardy. Seeds sown in beds of the usual kind, and covered about a quarter of an inch deep, will generally grow. They should be carefully weeded and watered dry, and at the age of one or two years, according to their strength, they should be planted in rows in the nursery, in the usual manner. In summer, weeding should be quite free, and in winter, digging between the rows; and when they are about three or four feet high, they will be of a good size for being transplanted into the wilder quarters. As these American forts grow with greater vigour than the common fort, and thrive on the most barren ground, they may be cultivated in England to great advantage. The variety of the different species may be propagated by layers. For this purpose a sufficient number of plants should be procured, and set on a spot of double deep ground, at the distance of two yards from each other. In the following year, if they have made young shoots, they should be cut off within half a foot of the ground, to form the wood, with all their shoot vigorously the following year; and during the young shoots should be planted about the wood, at the distance of a layer near their ends. They should take root, and become good plants in the following season; and if they will have sprouted up from the wood, and be ready for the same operation. The layer should not be kept, and the operation performed in the winter. If the plants do not root, they should not be headed down, but planted near the ground, and all the young twigs layered. An immediate crop may thus be raised; whilst young shoots will spring out in great plenty below the platted part, for the purpose of laying in for the succeeding year. This work may be repeated every autumn or winter; when some of the strongest layers may be planted out, if they are immediately wanted; whilst the others may be removed into the nursery, in order to become stronger plants, before they are removed to their destined situations. Cuttings also, if set in a moist shady border in the beginning of October, will frequently grow; but as this is not a sure method, and as these trees are easily propagated by layers, it hardly deserves to be practiced.

In Sweden, the budding and planting of the birch-tree is conducted as a directory for growing barley. See Poli- nation.

The fourth and fifth species, being of no use with us, are not cultivated, except in botanic gardens.

The fifth species, or alder-tree, delights in a very moist soil, where few other trees will thrive, and greatly improves such lands. It may be propagated by layers, cuttings, or suckers about three feet long. The best time for planting suckers, which is the best eligible, though perhaps a little expensive method, is in February or the beginning of March. These should be sharpened at one end, and the ground loosened with an iron crow, that when they are thrust in, the base may not be torn off. They must be planted at least two feet deep, that they may not be disturbed by strong winds, and at the distance of three feet. The plantations should at first be cleared of all weeds; and after every fall, in the following winter, the floods ought to be looked over, and all the weak suckers taken off. This will strengthen those which are already the strongest, and will enable them to shoot up more vigorously for poles. Many of the suckers will not grow; and Hunter, in his edition of Evelyn's Sylva, says, that he has never seen a cockle, raised in this way, so luxuriant and beautiful, as when raised from regular plants. If the alder be raised by layers, this operation must be performed in October, and in the following October they will have taken sufficient root for transplantation. They should then be set at least one foot and a half deep in the ground, and their tops should be cut off about nine inches above the surface, which will occasion their shooting out many branches. The method of raising these trees by suckers, is practiced abroad, and, says Hunter, (ubi supra) is greatly to be commended. If these trees are designed for coppices, they should be placed at the distance of six feet square, or they may be planted at six feet from each, and at the end of seven years, when they are fell for poles, every other flood may be taken away; and if the small lateral shoots be taken off in the spring, it will very much strengthen the upright poles, provided a few small suckers be left at certain distances upon the body to detain the sap for the increase of its bulk. In planting alders for coppices, Hunter (ubi supra) says, it is much better to raise them from young trees than from suckers. To obtain these in sufficient quantity, plant father, taken out of the meadows where the alder-trees grow, on a prepared piece of ground, and afterwards laid them down for floods; by the shoots in the succeeding autumns, and in twelve months they will have taken root, when they should be removed and planted in rows, and in one or two years they may be transplanted where they are to remain. If the coppice is raised upon barony or wetty ground, they may be removed from the nursery, and planted three feet asunder, in beds previously prepared for receiving them. Here they may be laid for six or seven years, when every other tree should be taken away, and the rest cut down for floods. Every ninth or tenth year will afford a full of these trees for poles;
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poles; which should be taken off smooth and fine, so that the flood may not be damaged, or hindered from producing a fifth crop.

These trees will thrive exceedingly on the sides of brooks, and may be cut for poles every fifth or sixth year. They may be also planted for hedges in moist ground, and trained into thick as are very close and thick, to the height of twenty feet and upwards. The banks of rivers may be fenced by planting, truncheons very close, and crosswise. As the leaves are large and of a deep green colour; these trees, if the beauty of aquatic plantations be regarded, should be preferred to others usually planted in swampy grounds.

The seventh species, or hoary alder, growing naturally in dry sandy soils, may perhaps be cultivated with the birch, where land is of little value, as an underwood, and may be propagated either by layers or cuttings, as well as by seeds, where they can be obtained. Martyn's Miller, Hunter's Evelyn's Silva, p. 225, 240. Withering's Bot. Arr. vol. ii. p. 296.

BETULA Americana. See Bursera.

BETULÆ, in Entomology, a species of CURCULO, entirely of a golden green colour in one sex, and blue in the other, with a spine on each side of the anterior part of the thorax of the latter. A native of Europe. Linnaeus.


BETULA, a species of Cryptoselphalus, that inhabits Berlin. The colour is black; thorax somewhat orbicular and hairy; wing-cases brownish with obscure streaks. Herb. &c.

BETULA, a species of Attelulus, of a black colour, with legs formed for leaping. Lin. Fr. Spec. This is curculio excisitator-niger of Degeer.

BETULA, a species of Cimex (Acanthus membranaceus), that lives on the white alder in the north of Europe. The thorax is denticulated; head muricated; anterior part of the wing-cases dilated. Lin. Degeer, &c.

BETULA, a species of Papilio (Pleb. Rur.), found in Europe. The wings are somewhat tailed, brown, yellowish beneath; posterior ones with two white streaks. Fabricius. Donov. Brit. Inf. &c. The larva is green, with pale oblique lines, and white on the sides; pupa glossy, and ferruginous. Feeds on the alder. The male distinguished by a fuscous spot on the upperwings.

BETULA, a species of Tenthredo, with the body red; thorax, vent, and eyes black; wings behind brown. Lin. Fr. Spec. This is tenthredinaria ferruginea of Degeer. Inhabit Europe.

BETULA, a species of Coccus, found on the white alder. It is round, and of a bay colour. Gmel. &c.

BETULEUS, SIXITUS, in Geography, whose true name was Birk, was born at Memmingen, in the year 1500, and obtained the reputation of an able grammarian, as well as a good Latin poet and philosopher. He taught the belles lettres and philosophy; and became principal of the college of Augsburg, where he died June 16th 1555. He published several works in prose; and his dramatic pieces of Joseph, Sufannah, and Judith, have been esteemed.

BETULINUS, in Ornithology, a species of Tetrao, described by Scopoli. The tail is black, varied with transverse rufous spots; rump whitish, falculated with black. Scop. Anim. Latham. This is the argusalis minor of Aldrovandus; and birch grus of Latham. The body is varied with black and rufous; bill and legs black; breast greyish; quill-feathers white at the tip; eyebrows not red.

BETULUS, in Botany. See Carpinus.

BETUWE, BETAW, or BATAVIA, in Geography, a tract of land, in the duchy of Guelderland, in the United Netherlands, situated betwixt the Rhine and the Waal, and forming part of the "Insula Batavorum," where the Batavians settled on their migration out of Germany. It has been divided into two bailiages, viz. the eastern or upper, and the western or lower Betuwæ. The former, by a change in the course of the Rhine, has been separated from Betuwæ, and removed into the duchy of Cleve, where the fortifications of the Schonenber-Schwanze, erected in 1586, by general Martin Schenk, have been gradually washed away by the water. The bailiages of lower Betuwæ comprehends a number of villages that lie on the Rhine. See Batavia.

BETWEEN DECKS, in Sea Language, denotes the space contained between any two decks of a ship.

BETWHA, in Geography, a river of Hindostan, which runs into the Jumna, 25 miles south-east of Calpy. This river, from its source south of Bopal, to its confluence with the Jumna, describes a course of 340 miles in a north-easterly direction.

BETZ, the principal place of a canton, in the district of Selmis and department of the Oise, containing 358 persons; the number of the canton being 2364. Its territory comprehends 2225 kilometres, and 29 communes.

BETZALEL, in Geography, a Jewish doctor of Prague, in Bohemia, flourished about the middle of the 16th century, and was chief of the Moravian academies, and judge of the nation in that country. He left several learned works, among which is that entitled "The Redemption and Eternity of Israel," in which he affirms the Jews of the certainty of the Messiah's advent, and of his settling them in a state of permanent prosperity.

BETZANDORFF, in Geography, a small town or borough of Germany, in the old mark of Brandenburg.

BETZDORF, the principal place of a canton, in the district of Luxembourg, and department of Foréts, containing 1286 inhabitants; those of the canton being 8195. Its territory comprehends 2125 kilometres and 7 communes.

BETZKO, a town of Hungary, 18 miles west of Topolcan.

BETZIRVA, or BARSAN, a town of Persia, in the province of Alderbeizan; 100 miles north-east of Taurus.

BEVAGNA, a small town of Italy, in the duchy of Spoleto, seated on the river Tinis, or Tinea.

BEVECUM, a town of Brabant, 8 miles south-east of Louvain. N. lat. 50° 45'. E. long. 4° 50'.

BEVEL, in Geography, and among Romans, a kind of square, one leg whereof is frequently straight, and the other bevelled, according to the sweep of an arch or vault; being also moveable on a point, or centre, so that it may be set to any angle. The make and use of the bevel are pretty much the same as that of the common square or mitre, except that the latter are fixed; the first at an angle of ninety degrees, and the second at forty-five; whereas the bevel, being moveable, may, in some measure, supply the office of both, and yet, which it is chiefly intended for, supply the deficiencies of both, serving to set off or transfer angles, either greater of less than ninety or forty-five degrees.

Bricklayers have also a bevel, by which they cut the under sides of the bricks of arches, arched or circular, to such oblique angles as the arches require, and also for other uses.

BEVEL, Graduated, is that which has about the centre of one of its arms a semicircle graven, and divided into 180 degrees, whose diameter stands square with the sides of the same arm; so that the end of the other arm, being divided at right angles, almost to the centre, shows by its motion the number of degrees contained in the angle to be measured. This is also called reciprocate, and pantometre.

Bevel angle is used among the workmen, to denote any other angle beside those of ninety or forty-five degrees.

The
BEVEL.

The BEVEL (see Plate II. Geometry, fig. 35.) consists of two rulers moveable on a common centre, like a carpenter's rule, with a contrivance to keep them fixed, at any required angle. The centre C must move on a very fine axis, so as to be in a line with the fiducial edges CB, CD of the rulers, and project as little as possible before them. The fiducial edges of the legs represent the sides of any given angle, and their intersection on centre C, its angular point. A pin, fixed in the lower ruler, and passing through a semicircular groove in the upper, serves by a nut A, which screws upon it, to fix the rulers, or legs, when they are placed at the desired angle.

The use of this instrument may be illustrated in the following examples:

1. Let three points, A, B, C, be in the circumference of a circle, which is too large to be described by a pair of compasses, and let it be required to find any other number of points in the same circumference. Bring the centre of the bevel to B, (fig. 36.), the middle point of the three given ones, A, B, and C, and holding it there, open or shut the instrument till the fiducial edges of the legs be upon the other two points, and fix them there by means of the screw A (fig. 35): this operation is called setting the bevel to the given positions. Then removing the centre of the bevel to any point between B and A or C, the leg lying at the same time kept upon A and C, the centre will describe, or be always found in the arc which passes through the given points, and will thus determine as many others as may be required between the limits of A and C. In order to find points without these limits, proceed in the following manner: the bevel being fixed, bring the centre to C, and mark the distance CB upon the left leg; remove the centre to B, and mark the distance BA upon the same leg; then placing the centre on A, bring the right leg upon B, and the first mark will fall upon A, a point in the circumference of the circle, passing through A, B, and C, whose distance from A is equal to the distance BC. Removing the centre of the bevel to the point A, a point found, and bringing the right leg to A, the second mark will find another point C* in the same circumference, whose distance from A is equal to AB. By proceeding in this manner, any number of points may be found, whose distances on the circumference are alternately BC and BA. In the same manner, by making similar marks on the right leg, points on the other side, as at a and c are found, whose distances Cc, c'a, are equal to BA, BC respectively. Intermediate points between any of the above are given by the bevel in the same manner with those between the original points.

2. Three points, A, B, and C, being given, to draw a line from any one of them, tending to the centre of the circle, which passes through them all. Set the bevel to the three given points A, B, and C (fig. 37); lay the centre on A, and the right leg to the point G, and the other leg will give the tangent AG. Draw AD perpendicular to AG for the line required. For BA E being BCA, the angle EAC is the supplement to the angle ABC, or that to which the bevel is set; hence, when one leg is applied to C, and the centre brought to A, the direction of the other leg must be in that of the tangent GE.

3. Three points being given as before, let it be required to draw from a fourth given point D, a line tending to the centre of a circle passing through the first three points. On D (fig. 38.), with the radius DA describe an arc AK; set the bevel to the three given points, A, B, and C, and bring its centre, always keeping the legs on A and C, to fall on the arc AK, as at H; on A and H severally, with any convenient radius, strike two arcs, crossing each other at I; and the required line DI will pass through the points I and D. For a line drawn from A to H will be a common chord to the circles A H K and A B C; and the line I D bisecting it at right angles, must pass through both their centres.

4. Three points being given as before, together with a fourth point, to find two other points, such, that a circle passing through them and the fourth point, shall be concentric to that passing through three given points. Draw AC and CE tending to the centre, by a former problem: set the bevel to the three given points A, B, and C; bring the centre of the bevel to D, and move it upon that point till its legs cut off equal parts AN, C Q, of the lines A E and C E; and N and Q will be the points required. For, supposing lines drawn from A to C, and from N to Q, the segments A B C and N D Q will be similar ones; and consequently, the angles contained in them will be equal.

5. Two lines tending to a distant point being given, and also a point in one of them; to find two other points (one of which must be in the other given line), such, that a circle passing through these three points may have its centre at the point of intersection of the given lines. Draw E H (fig. 39.) at right angles to A B, and make E H = F E; let the bevel to the angle G D O, and keeping its legs on the points H and E, bring its centre to the line A B, which will give the point I.

An improved bevel is exhibited in fig. 40, by which the arcs of circles of any radius, without the limits attainable by a common pair of compasses, may be described. It consists of a ruler A B, composed of two pieces riveted together near C, the centre or axis, and of a triangular part C F E D. The axis is a hollow socket fixed to the triangular part, about which another socket, fixed to the arm C B, of the ruler A B, turns. These sockets are open in the front for part of their length upwards, as represented in the section at I, which shows the point of a tracer, or pin, fitted for sliding in the socket. The triangular part is furnished with a graduated arc DE, by which and the vernier at B, the angle D B may be determined to a minute. In this arc is a groove, by means of which, as well as by the nut and screw at B, or some similar contrivance, the ruler A B may be fixed in any required position. A scale of radii is put on the arm C B, by which the instrument may be set to describe arcs of given circles, not less than 20 inches in diameter. In order to set the instrument to any given radius, the numbers expressing it in inches on C B, is brought to cut a fine line drawn on C D, parallel and near to the fiducial edge of it, and the arms are fastened in that position by the screw at B. Two heavy pieces of lead or brass G, G, made in form of the sector of a circle, the angular parts being of steel, and wrought to a true upright edge, as shown at H, are used with this instrument, whose arms are made to bear against those edges when the arc is drawn. The under sides of these sectors are furnished with fine short points to prevent them from fishing. The fiducial edges of the arms CA and C D, are each divided from the centre C into 200 equal parts. This instrument might be furnished with small cursors, like the pentagram; but little buttons, fixed on its under side, near A, E, and D, will enable it to slide with sufficient ease.

The use of this instrument may be exemplified in the following problems:

1. To describe an arc, which shall pass through three given points.—Place the sectors G, G, with their angular edges over the two extreme points; apply the arms of the bevel to them, and bring at the same time to its centre C, that is, the point of the tracer, or pen, put into the socket, to the third point, and there fix the arm C B; then, bringing the tracer to the left-hand sector, slide the bevel, keeping the
arms constantly bearing against the two factors; till it comes to the right-hand factor, by which the arc required will be described by the motion of its centre C. If the arc be wanted in some part of the drawing without the given points, find by case 1. under simple bevel, other points in those parts where the arc is required; and thus a given arc may be lengthened as far as is necessary.

2. To describe an arc of a given radius, not less than 10 inches.—Fix the arm CB so that the part of its edge, corresponding to the given radius, always reckoned in inches, may lie over the fine line drawn on CD for that purpose; being the centre to the point through which the arc is required to pass, and dispose the bevel in the direction in which it is intended to be drawn; place the sectors G, G, exactly to the divisions 100 in each arm, and strike the arc as above described.

3. The bevel being set to strike areas of a given radius, as in the last instance, let it be required to draw other arcs, whose radii shall have a given proportion to that of the first arc. Suppose the bevel to be set for describing areas of 50 inches radius, and it be required to draw arcs of 60 inches radius, with the bevel so set. Say, as 50 is to 60, so is the constant number 100 to 120, the number on the arms CA and CD, to which the sectors must be placed, in order to describe arcs of 60 inches radius. When it is said that the bevel is set to draw areas of a particular radius, it is always understood that the sectors G, G, are to be placed at No. 100 on CA and CD, when those arcs are drawn.

4. An arc ACB (fig. 41.) being given, let it be required to draw other arcs concentric to it, which shall pass through given points, e.g. P. Through the extremities A and B of the given arc, draw lines AP, BP, tending to its centres, by case 3. under simple bevel. Take the nearest distance of the given point P from the arc, and let it from A to P, and from B to P. Hold the centre of the bevel on C, any point near the middle of the given arc, and bring its arms to pass through A and B at the same time, and fix them there. Place the sectors to the points P and B, and with the bevel, let as before directed, draw an arc, which will pass through P the given point, and be concentric to the given arc ACB.

5. Through a given point A (fig. 42.) in the given line, to strike an arc of a given radius, and whose centre shall lie in that line, produced if necessary. Set the bevel to the given radius, by case 2. Through A, at right angles to AB, draw CD; lay the centre of the bevel, let as above, on A, and the arm CA on the line AC, and draw a line A E along the edge CD of the other arm. Divide the angle DAE into two equal parts by the line AF, and place the bevel so that, its centre being at A, the arm CD shall lie on AF; while in this situation, place the sectors at No. 100 in each arm, and then strike the arc.

6. An arc being given, to find the length of its radius. Place the centre of the bevel on the middle of the arc, and open or shut the arms till No. 100 on CA and CD, fall upon the arc on each side of the centre; the radius will be found on CB (in inches) at that point of it, where it is cut by the line drawn on CD. If the extent of the arc be not equal to that between the two Nos. 100, make use of the No. 50, in which case the radius found on CB, will be double of that sought; or the arc may be lengthened by prob. 1., till it be of a sufficient extent to admit the two Nos. 100.

Adams's Geometrical and Graphical Essays, by Jones, 1757.

BEVELAND, in Geography, the name of two islands, formed by the separate branches of the Schelde, belonging to the state of Zealand; the one, called North Beveland, is about 2 leagues long, and 1½ broad; it is south of Schoone island, and on the south side of the channel of the east Scheldt; that here runs into the sea; the other, called South Beveland, or Zuid, is near 8 leagues long, and 2½ wide, and comprehends the town of Goes and several villages; it divides the coast from the west Scheldt, and the two points of its west end approach to the ports of Armgard and Flushing. Both these islands have suffered much from inundations.

BEVELLING, in Ship Building, the art of hewing timber with a proper and regular curve, according to a mould which is laid on one side of its surface.

In order to know any piece of timber to its proper bevel, it will be very expedient to make one side fair, and out of windings; a term used to signify that the side of the timber should be a plane. Now if this side be uppermost, and placed horizontally, or upon a level; it is plain, if the timber is to be hewed square, it may be done by a plummet and line; but if the timber is not hewn square, the line will not touch both the upper and lower edge of the piece, or if a square be applied to it, there will be wood wanting either at the upper or lower side. This is called within or without a square. When the wood is deficient at the under side, it is called under-bevelling; and when it is deficient in the upper side, it is called standing bevelling; and this deficiency will be more or less according to the depth of the piece: so that before the proper bevels of the timbers are found, it will be sometimes very convenient to assign the breadth of the timber; may, in some cases, it will be absolutely necessary, especially afores and abait; though the breadth of two timbers, or the timber and room, which includes the two timbers, and the space between them, may be taken without any sensible error, as far as the square body goes. For as one line represents the moulding side of two timbers, the fore-side of the one being supposed to unite with the aft side of the other, the two may be considered as one entire piece of timber. For further observations on this subject, and particular instructions with respect to the mode of bevelling by ribbon lines, and by water-likes, see Murray's Treatise on Ship-building, p. 166, &c. See Ship.

BEVENSEN, commonly called Bahmen, a town of Germany, in the principality of Luneburg-Zell, seated on the Elbmun, not far from Minden.

BEVER, a river of Germany, which runs into the Weeler near Beverungen, in the circle of Westphalia.

BEVERHEAD, a cape on the south-east coast of Nova Scotia. N. lat. 44° 42'. W. long. 62° 20'.

BEVERA, a river of Italy, which passes by Spofello, in the county of Nice, and runs into the Po, two miles north of Vintimiga.

BEVERAGE, in a general sense, signifies drink. Hence nectar is said to be the beverage of the gods. In Writers of the Middle Ages, beverage, beveragium, or libation, denotes money given to an artisan, or other person, to drink, over and above his hire or wages. Du Cange.

BEVEREN, in Geography, a town of France, in the department of the Elfaunt, and chief place of a canton in the district of Ternonde. The place contains 4927 and the canton 15,740 inhabitants; the territory includes 167½ square kilometres and eight communues.

BEVERGEM, a small town of Germany, in the circle of Westphalia, and bishopric of Munster, situated in the midst of a morass, and having near it a salt spring; 21 miles north of Munster.

BEVERIDGE, William, in Biography, a learned and pious prelate of the English church, was born at Barrow in Leicestershire, in 1638, and admitted in 1653 into St. John's college Cambridge, where he took his degrees of bachelor of arts in 1656, of master of arts in 1660, and of doctor of divinity in 1679. At the university he distinguished himself by his application to the learned languages, and particularly to oriental
BEV

oriental literature, in which he so much excelled, that at the age of 18 he wrote a treatise on the excellency and use of the oriental tongues, with a Syrian grammar. He was no less distinguished at college by his early piety and exemplary sobriety and integrity. Having taken orders in 1661, he was collated by Dr. Sheldon, bishop of London, to the vicarage of Elsing in Middlesex, which he resigned in 1672, upon being chosen rector of St. Peter's Cornhill, by the lord mayor and aldermen of London. In this situation, such were his zeal and affiduity in the discharge of the duties of his office, not only in the pulpit but out of it, and such was the feculars that attended his labours, that he was denounced "the great reviver and reformer of primitive piety." His singular merit recommended him to the favour of his diocesan, bishop Herringman, who, in 1672, collated him to one of the prebends of St. Paul's; and in 1681, bishop Compton promoted him to the archdeaconry of Colchester, every part of which he visited in person. In 1683, he was installed prebendar of Canterbury, and he also became chaplain to king William and queen Mary. Declining to accept the fee of Bath and Wells, which was offered to him in 1691, he was consecrated, in 1704, bishop of St. Asaph. In this elevated station he prosecuted, with his accustomed zeal and diligence, every practicable measure for advancing the honour and interest of religion, both among the clergy and laity: recommending to the former the "duty of catechising and instructing the people committed to their charge, in the principles of the Christian religion, to the end that they might know what they were to do, in order to salvation," and furnishing them with a plain and easy "Exposition upon the Church Catechism." After having possession this new dignity for between three and four years, he died March 5th, 1728, in the 71st year of his age, and was buried in St. Paul's cathedral. He left the greatest part of his estate to the societies for propagating the gospel, and for promoting Christian knowledge. Of his numerous works, those published by himself were, 1. "De Linguarum Orientalium, prefentim Hebreaicis, Chaldaicis, Syriaco, Arabicis, et Samaritana, praefertim ac usu, cum Grammaticâ Syriaca tribus libris traditâ," Lond. 1658, 8vo.; 2. "Institutionum Chronologicarum libri duobus, cum editis in Nova Testamenti libris," London, 1669, 4to., 1705, 4to., and 1724, 8vo.; 3. "Codex Canonicum S. S. Patrum Epistolorum, et Conciliorum ab Ecclesiae Graecae receptorum; necnon Canonicarum S. S. Patrum Epistolorum: unus cum Scholis Antiquiorum linguis et scriptis alias habens spectabilibus; quorum plura et Bithenicae et Dadiuae sacrarum MSS. codices et principum edidit; regius utrumque MSS. fummi fade et diligenter collata, &c." Oxon. 2 vol. 12mo. 1672; 4. "Codex Canonicum Ecclesiae primitivae vincentiis et illustrit." Lond. 1679, 4to. (see Canons.) 6. "The Church Catechism explained, for the use of the diocese of St. Asaph." Lond. 1714, 4to.; several times reprinted in a smaller volume. After his death, several of the bishop's works, not intended by himself for publication, and in various respects injurious to his memory, were published by his executors. The following of devotional tracts, among which are his "Private Thoughts upon Religion," a great number of sermons, a Body of Divinity, or "The Theology of the Church," vol. 2, and "Exposition of the 39 articles, &c." In his "Private Thoughts" the bishop has incurred serious animadversion, particularly with respect to his meditation upon the Trinity, in which he unreservedly adopts the Calvinistic system. The author, however, "proceeds not in the false manner of Dr. Beveridge, but in the true manner of Dr. Compton, in which the choice of the learned, his extensive labours have been very extensively allowed; his devotion included: a genuine, and as a real man and writer, he has been extraordinarily esteemed by his admirers and panegyrists, and no less severely censured by others, for the quaintness and puerility of his style, the fallacies of his conceptions, and incommensurability of his reasoning, and his avowed opposition to rational sentiments of religion. These reflections, however, result from a perusal of his polemical writings, the publication of which has been ascribed to avarice or want of judgment on the part of his executor. All have concurred in allowing him the praise of the strictest integrity, of sincere piety, of exemplary charity, and of great zeal for religion. Bio. Brit. Gen. Dict.

BEVERLACKE, in Geography, a river of Germany, which runs into the Aland, 3 miles south of Schlesauen, in the old mark of Brandenburg.

BEVERLAND, Adrian, in Biography, a man of genius and learning, who profitted his talents in the composition of several obnoxious books, was a native of Middle-
of Bede, whose preceptor, John of Beverley, archbishop of York, founded and erected a monastery here, to which he retired, and wherein he died in 721. King Athelstan having made a vow, before he proceeded against the Scots, instituted a college of secular canons, on his return to this town in 935, and also granted the freemen many immunities and privileges, which were allowed and confirmed by Henry I. and most of the succeeding monarchs to queen Elizabeth. By the last charter, which contains the heads of those previously granted, the government of the town is vested in a mayor, recorder, aldermen, and other subordinate officers. Though within eight miles of Hull, this town prefers great respectability and commercial consequence, from its fairs, markets, and trade. The fairs for the eafli riding of Yorkshire are held here in a handsome hall, called the Hallgarth, which contains a regifter office for deeds and wills, that relate to any lands in this part of the county. Beverley has sent two members to parliament from the 26th of Edward I., except a few intermissions in the reigns of Edwards II. and III.

Here were formerly four churches, but only two remain; one of which is a large handsome edifice, and is called the Minster. King Edward VI. and queen Elizabeth granted certain revenues for the support and repairs of this edifice; but those revenues being improperly applied, a Mr. Moyser, M. P. for the town, procured a brief for the repair of it in 1708. His own contributions, with those from his friends, amounted to 1500l.; which, with 800l. raised by the brief, were placed in the funds, and by the rife of the South sea stock, in the year 1720. he was enabled to complete the repair and adornment of the church in his lifetime. King George I. not only encouraged this work by a liberal donation of money, but gave the stone of the disolved monastery of St. Mary's in York towards the building; for Michael Warton also gave 500l. and bequeathed 400l. more as a perpetual fund towards keeping it in repair. The east window contains some fine painted glasses; and the screen between the nave and choir is much admired for its ornamental workmanship. The north wall of the great chros-aile was at one period inclined from its perpendicular, but Mr. Thornton of York invented a machine, which, by means of levers, &c. restored it to its original position. The ancient fabric was consumed by fire in September 1778. Here are several monuments for the Piercys, earls of Northumberland, who built a private chapel in the choir.

The principal trade of Beverley consists in making of malt, oatmeal, and in the tanning of leather. The colthing trade was, at a former period, an object of much consequence here, but at the time of Leland it was falling fast to decay. Connected with the borough, are four large common fields, containing nearly 1000 acres, in which every burgess or freeman is allowed to pasture a certain number of cattle. In one of these fields is a mineral spring, which has proved serviceable in favouring the medicinal disorders. There are seven almshouses in the town, and legacies left for erecting two more. Here is also a free-school, whose scholars are allowed two fellowships in St. John's college Cambridge, also three scholarships and three exhibitions. Beverley is 193 miles north from London. It has weekly markets on Wednesdays and Saturdays; five fairs in the year; and five annual great markets for fogs, &c. This town consists of three parishes, called St. Martin's, St. Nicholas's, and St. Mary's; and according to the official population report in 1860, included 122 houses, and 5401 inhabitants.

BEVERLY, John of, in Biography, archbishop of York in the eighth century, was born at Harpham in Northumberland, and having embraced the monastic life, he became afterwards abbot of the monastery of St Hilda. He was instructed in the learned languages by Theodore, archbishop of Canterbury, and was justly esteemed one of the best scholars of his time. Some say that he studied at Oxford, and took there the degree of master of arts; but as no degrees were then conferred in this university, this fact has been disputed. By Alfred, king of Northumberland, to whom his merit recommended him, he was advanced, in 685, to the see of Haugufall, or Haworth, and in 687, translated to that of York. Beverley was tutor to the venerable Bede, and intimate with A&lca and other famous Saxons doctors, several of whom he engaged in writing comments upon the Scriptures. In 704, he founded a college for secular priests at Beverley, which, in honour of his memory, was endowed by his kings, and particularly by Athelwine, with considerable immunities, so that it became an asylum, or sanctuary, for debtors and persons suspected of capital crimes. After he had governed the see of York 34 years, being tired with the tumults and confusions of the church, he divested himself of the episcopal character, and retired to Beverley, and four years after died in the odour of sanctity, on the 7th of May 721; and the day of his death was appointed a festival by a synod held at London in 1416. Bede, and other monkish writers, ascribe to him several miracles. Between three and four hundred years after his death, his body was taken up by Alfric, archbishop of York, and richly enshrined. He was the author of several homilies, and other religious pieces. Biog. But.

BEVERLY, in Geography, a township, and post-town of America, in Essex county, Massachusetts, separated from Salem by a handsome bridge, and distant about 20 miles east of north from Bolton, and 22 south-east from Newbury port. It has two parishes, containing 3250 inhabitants. Those of the parishes next the harbour are devoted to the fisheries, and the other branches of navigation. In the other part of the town, which is chiefly agricultural, is a cotton manufacturer. N. lat. 42° 31'. W. long. 7° 50'.

BEVERLY'S Manor, or Irish trail, is a tract of land, in Virginia, in N. lat. 38° 10', at the head of Mattawen's river, a western branch of the Shenandoah, which rises here by three branches, viz. Middle river, Lewis, and Christian creeks, and lying between the Blue and the North ridge.

BEVERN, a town of Germany, in the circle of Upper Saxonxy, and duchy of Brunswick, seated on the Wefer, 20 miles west of Einbeck.

BEVERON, a river of Savoy, which runs into the Drance, 4 miles south-west of Evian.

BEVERS, Little, head of the coast of point de la Hune, on the southern coast of Newfoundland island, in North America, between cape de la Hune on the east, and cape Raye on the west, being the south-west point of the island.

BEVERSTADT, a town of Germany, in the circle of Lower Saxonxy, and duchy of Bremen, 24 miles north of Bremen.

BEVERSTONE, a village of Gloucestershire, England, is situated about two miles west of the town of Tetbury, and is noted for the lately remains of its ancient castle. This fortress is of uncertain foundation, but was undoubtedly a strong place prior to the conquest. Earl Godwin, Swane, and Harold here met under the pretence of affiting Edward the confessor against the Welsh in 1048. Maurice, lord Berkeley, or de Gaunt, fortified and repaired it, and in 1227, was prosecuted by the king for doing so, without royal permission. It was purchased by Thomas lord Berkeley soon after the return of Edward III. from the battle of Poictiers. Many of the spoils and ransom from that battle were appropriated to enlarge and beautify this castle, which was used as a manion till the great rebellion, when it was strengthened, and held for the king, but besieged by, and surrendered to Col. Maffie. Great part of the castle, with a dwelling-house within its walls, was soon afterwards destroyed.
stroked by fire. It was originally a square building, with a tower at each corner, one of which still remains, with fragments of walls, and the greater part of a chapel. This has a beautiful archtectural roof, and on the right side of the altar is a statue of tabernacle work, with a statuette, a chalice in which is a consecrated, and over it a parament. The mast surrounding the whole was about 200 yards in circumference. At a short distance north of the castle is the parish church, which is a small plain building, Rudge's History of the County of Gloucester.

BEVERUNGEN, a town of Germany, in the circle of Weltphalia, and bishopric of Paderborn, at the confluence of the Bever and the Weir, near which are springs of fast water, 20 miles south-east of Paderborn.

BEVERWYCK, Louis Van der, of Beverwyck, in Geography, not more known and esteemed as a physician than as a magistrate, and member of the administration in his country, having attained to high honours in both the occupations, was born at Dordrecht in Holland, in 1591. Being of a distinguished family, he had the advantage of receiving instructions in classical literature from Gerard John Vossius, and afterwards of studying the different branches of medicine under the ablest masters in France and Italy. Returning to his own country, he took the degree of A. D. in medicine at Padsa, about the year 1624. His works are numerous. Most of deserving notice are, "Epithetica quibus, de terminis zvzis fatalis un mobilis, cum docet mum repulslas," 8vo. 1634, Dordt. Whether there is a fixed term, beyond which life cannot be extended, he determines in the negative. "Montanus, Refutation argumentorum, quibus medicine necessitatem impugnat," 8vo. 1634, Dordt; in which he affrays the cavils of the fierce Montague against physicians, and draws the necessity of the art. "Epithetica quibus, de terminis zvzis fatalis un mobilis, cum docet mum repulslas," 8vo. 1634, Dordt. A compendium of the practice of medicine, taken from the most valuable writers on the subject.

"Epithetica quibus, de terminis zvzis fatalis un mobilis, cum docet mum repulslas," 8vo. 1644, Roter. A collection of letters on subjects pertaining to medicine, to which are added, the Eloge of Medicine by Lagra, Cardan, and Melanchon. His works, of which Haller has given a complete list, were published together in 8vo. at Amsterdam, 1651. They have most of them passed through several editions. He died Jan. 19th, 1645, and was honoured with an epitaph by his friend Heinicus. Haller Bib. M. D. Gen. Biog.

BEVERWYCK, in Geography, a town of North Holland, with a small harbour in the Wyckmeere, which is a continuation of the Ye, 31 leagues north of Harlingen.

BEUF, John Le, in Biography, a learned and laborious French writer, was born at Auxerre in 1685, and educated at Paris. After his return to his native town, he was made canon of its cathedral in 1714, and during his residence there frequently attended the debates of the clergy of Sees, to acquaint them in reforming the liturgies of that diocese. In 1724, he was engaged by the archbishop of Paris in the composition of the chart in the new breviary and missal of that city; and from this time he chiefly resided at Paris. He was one of the most indefatigable, industrious, and fast-literate ecclesiastical antiquaries of France. The catalogue of his works, from 1716 to 174, fills 12 pages in folio in the Bibliotheca Leopoldina; and his quickness for productions for the last 24 years of his life, are nearly as numerous. His "Traite sur l'histoire de France" is full of curious references, and 1,153 pages, the chief part of which a munificent endowment of the first ages of the church can consult. The poverty of learning died in 1760.

The best known of his numerous works, besides that already mentioned, are "A Collection of various writings, tending to illustrate the history of France," 2 vols. 12mo. 1724; "Dissertations on the ecclesiastical and civil history of Paris," 3 vols. 12mo. 1724; "Memoir on the History of Auxerre," 2 vols. 4to. 1745; "History of the city and of all the diocese of Paris," 15 vols. 12mo. more than 200 Memoirs," or "Historical Dissertations," inserted in the memoirs of the Academies, and a variety of dissertations printed in the Memoirs of the Academy of Inscriptions. He also liberally communicated a number of original pieces, which he found in his subsidious research, to learned men engaged in different works. Noun. Dict. H. 8.

BEUK, Small Le. See Le Bureu.

BEULES, a village of Switzerland, in the government of Aigle, in that part of the Valais which belongs to the republic of Berne. Beulex is distant about 5 miles from the small town of Berne, and is famous for its salt springs. Mr. Coxe informs us, that he went into the mountains about 3000 feet, almost horizontally. The galloway is 6 feet high, and 2 broad, and nicely heaved and hollowed in a black rock, veined in fume places with white gypsum. The salt is produced from springs, which are found within a fold rock, perforated at a great expense; the richest source yields 28 pounds of salt per cent, and the poorest but half a pound. Near these springs are several warm sources, which contain a mixture of salt, but are strongly impregnated with sulphur, as a flame when a lighted candle is put into the pipe through which they flow. No solid salt, except a few cubic, has been yet discovered; but the mountain is replete with its particles. Rocks of white gypsum, or alabaster, mixed with whitish clay, are common near the springs, in the same manner as may be observed in the pits of Northwich in Cheshire. After traveling in this subterraneous passage near three quarters of a mile, Mr. Coxe observed a great wheel, 57 feet in diameter, which raises the brine from the depth of about 70 feet. From this place is a shaft 300 feet high, which is cut through the mountain to the surface, for the purpose of introducing fresh air. He noticed two reservoirs hollowed in the solid rock for holding the brine; one was 160 feet square, and 3 deep. In process of time, the workmen pierced the rock 25 feet deeper, and cut a gallery 100 feet long, and they formed a third reservoir, containing 5500 cubic feet. The brine deposited in these reservoirs is conveyed by means of 2000 pipes, about a league to Berne's, where the salt is extracted. The brine pipe near Aigle contains only two to one, a half per cent, and yield annually about a third as much as those of Leuven, or about 500 quintals. The salt is much whiter and finer than that of Leuven, and consequently Leuven is dearer than price. There, which are only salt rocks, are situated about 10 miles west of the annual production of the town. The remainder is procured chiefly from Berne, at a moderate price, stipulated by treaty. Coslin Travels, vol. iv. p 135.

BEVER, in Geography, the chief place of a canton, in the duchy of Franche-Comte, and part of the Rhine, 426 inhabitants; 5 miles from the town of 1493. Its territory comprises 225 kilometer and 6 annates.

BEVRIER, in Heraldry, denotes a third broken, or opened, as a copperer's rule. This he bears as argent a chief vert, by the name of Beveri.

BEVIN, Elway, in Biography, among our ecclesiastical compeers in the time of James I., justly deserve to be ranked...
B E U

marked with the musical luminaries of that reign. He was a
fellow of Trinity, which is discoverable by his works; but it
is not so easy to discover how it could have been at the
recommendation of his master, who died 1589, that he was
appointed extraordinary of the chapel royal, in 1589,
as has been said. His service in D minor, printed in Boyce's
collection, has the true ancient cast of modulation, the
fer-
rego periodic upon it, which gives a dignity to its effects,
for which we can now hardly account. The accents, as
usual with old masters, are often carelessly placed; but if
that imperfection be removed, or regarded with indulgence,
the composition must be allowed, in point of harmony and
modulation, to be admirable. And there are some grand
effects produced by pauses and long notes without changing
or infringing the original measure, that afforded us very plea-
sing sensations. Elway Bevin was, indeed, a man of genius;
and it is to be lamented that more of his compositions have
not been preserved. Besides his appointment in the chapel
royal, he was organist of Bristol cathedral, and the master of
Dr. Child. But notwithstanding his abilities and greatness,
he was dismissed from all his employments, in 1659, on being
discovered to adhere to the Roman communion.
In 1631, he published a work complete with harmonical en-
coragement, entitled "A Briefe and Full instruction of the art
of musicke, to teach how to make difficult of all proportions
that are in use: very necessary for all such as are desirous to
attain to knowledge in this art; and may, by practice, if they
can sing, soone be able to compose three, four and five parts;
and also to compose all sorts of canons that are usual, by
these directions of two or three parts in one, upon a plains-
ong," by Elway Bevin, thin 4to, of 52 pages.
This work, however useful it may be discovered now, must
have been of singular service to young students in times when
canons were regarded as the greatest efforts of human intel-
llect, and the solution of these enigmas was equally difficult
with that of the most abstruse and complicated problems in
Euclid. Micheli Romano published a similar work at Venice, 1615,
and Valentini another at Rome, 1655. See
Micheli and Valentini.
BEVIO, in Geography, a small village of Switzerland,
seated near the Julian Alps, upon the Little Rhine, in the
high road leading to Coire. Bevio and Valmor area one
community, governed by 11 magistrates; though the number
of voters, who appoint these magistrates, scarcely exceeds
40. The chief is called "Minifrale," and is confirmed
every year, for which each voter receives a florin. About
one-third of the merchandise from Como to Coire passes by
Bevio; the greater part is sent by Splugens.
BEUNTERSHEIM, a town of Germany, in the circle
of
the Upper Rhine, and bishopric of Worms, 6 miles south
of Worms.
BEURATH, a town of Bohemia, in the county of
Glatz.
BEURRIA, and Beurreia, in Botany. See CA-
LYCANTHUS and ERRETIA.
BEURRE, in Geography, a town of France, in the
department of the Doubs, and chief place of a canton in the
distric of Belfo Shank, 2 miles south of Belfo Shank.
BEURRY, a town of France, in the department of the
Meuse, and chief place of a canton in the distric of Barle-
Duc, 13 league west of Bar-le-Duc.
BEURS, William, in Biography, a painter, was born at
Dor in 1656, and discovering a natural genius for drawing
and designing, he was placed, at the age of 18, under the
instructin of William Drumilgen. He painted in the style
and manner of his master, almost equalling him in the freedom
of his hand, and the clearness of his colouring, and surpa\sion
him in the correctness of his design. Addiciting himself to
a dissolute life, he obtained neither the reputation nor the
wealth which his talents, diligently exercised, might have
enabled him to acquire. He painted portraits, landscapes,
and flowers. Pilkington.
BEUS, in Ancient Geography, a river of Macedon,
mentioned by Livy and Steph. Byz., near which was a town
called Bica, Bice, according to the latter.
BEUTHEN, or Nieder Beuthen, in Geography, a
town of Germany, in the circle of Upper Saxony, and prin-
cipality of Carinthia, on the Oder, containing two churches;
5 miles S. W. of Ziegenbrueck.
Beuthen, Nieder, a town of Silesia on the Oder, in the
duchy of Glogau. It has suffered much by war and fire;
distant 13 miles W. N. W. from Ober Glogau. N. lat.
51° 42'. E. long. 15° 51'.
BEUTEN, Ober, a town of Silesia, formerly belonging to
the principality of Jagendorf, but since to the principality
of Oppeln. It had anciently a productive mine of silver;
distant 40 miles E. S. E. from Oppeln. N. lat. 50° 16'.
E. long. 18° 52'.
BEUTSCHEN, a town of Poland, in the palatinate of
Posen, 44 miles west of Posen.
BEUVON, a town of France, in the department of the
Calvados, and chief place of a canton in the distric of Pont
l'Evque, 12 miles south of Caen.—Also, a river of France,
which runs into the Loire, 2 leagues below Belois.
BEUVRY, a town of France, in the department of the
Straits of Calais, and chief place of a canton in the distric
of Bethune, half a league east of Bethune.
BEVY, among Sportmen, is used to signify a brood of
quails. Thus also we say, a covert of partridges, a hide of
keets, and a pack of greyhounds. Bevy is sometimes used
among foresters to express a herd of deer, though it is much
less frequently used in this sense than in the former.
BEZEEVILLE, in Geography, a town of France, in the
department of the Eure, and chief place of a canton in the
distric of Pont-Audemer; 25 leagues west of Pont-Aude-
mer. It contains 2457 per sons, and the population of the
canton amounts to 12,254. Its territory includes 192 1\kilo-
metres and 20 communes.
BEWCASTLE, a parish and village of Cumberland,
England, is rendered interesting to the topographer and an-
tiquary from the Roman relics that have been discovered
within its limits, and from the singular obelisk in the church-
yard. This parish is supposed to have included the Roman
fation where part of the Legio-Seconda Augusta was gar-
risoned to guard the workmen employed in erecting the
famous Roman wall that separated England from Scotland.
Many vestiges of ancient buildings are yet remaining; and
numerous Roman coins, and some inscribed stones, have been
found here. The obelisk, which has furnished a theme for
much dissertaion, contains various sculptured ornaments,
with a Roman inscription, and some figures in baso-relivo.
The church, with the castle, are included within an entrench-
ment. The latter, now in ruins, appears to have been of a
scaurform, and was battered down by the parliament's
forces in 1641. In this parish are two schools supported
by subcription, whose masters have about ten pounds each per
annum, with the privilege of a whistle gate. This was a pe-
cular custom, formerly very common in Cumberland, and the
neighbouring counties, and now prevails in some villages.
It is a privilege given to the master of applying to his pupils'
parents in rotation, for provisions, Several thousand
sheep and black cattle are fed on the hills and moor parishes.
Hutchinson's History of Cumberland.
BEWDELEY, a market and borough town of Worcerc-
shire in England, is pleasantly situat ed on the banks of the river
Severn, whose navigable stream has given prosperity to the place.
BEY

It was formerly included within the marches of Wales, but by a statute of Henry VIII., was annexed to the county of Worces-
ters. Leiria defends this place as remarkable for the "wonderful height of the trees in the adjacent forest of Whip," for its "beautiful situation," and for the palace of Tashishwall, which Henry VII. built to be a place of retire-
ment for prince Arthur. The cemetery of this prince's marriage is said, with Catherine of Arragon, by proxy, was performed here on the 26th of May, 1547. King
Henry VII. gave all the land for building the bridge across
the Severy, which was erected by Edward IV. On the
middle pier of this, stands a gate-house, part of which is for
the corporation's prison.

The town is in the parish of Ribbesford, where there is an
ancient manor house, in which was found the manuscript
copy of the title of lord Herbert of Cherbury. Here is a chapel,
which was built on the site of an ancient wood structure in 1742.
A set of hambles was also erected in 1743; and the
town parish of the benefits of a free grammar school, which
was founded in the latter part of queen Elizabeth's reign; little alms-houses, and a charity school. The
manufacturers and trades of this town were formerly con-
"iderable, but they are now principally confined to tanning,
nmork, cutting, and a few others. Bewdley seems to
have been first incorporated by king Edward IV, whose char-
acter grants the freemen great privileges and immunities by sea
and land. These were confirmed by Henry VII., and again by
James I. This charter was surrendered in the time of
Charles II.; but in the next reign another was granted, which
on a trial in 1725, was determined to be void. A new one
was thereafter obtained from queen Anne, but this produced
some litigation, which at length was determined in its favour.
This empowers the bailiff and a capital burgesses to return
one member to parliament. Here are formerly two weekly
markets, on Wednesdays and Saturdays; but the latter is
only continued; which, with three fairs, annually attract
much company and trade to the town.

Bewdley is 129 miles N.W. from London. It contains
849 houses, and 3671 inhabitants. Nath's History of Wor-
cesterhshire.

BEWITS, in Falconry, denotes a piece of leather to which
a hawk's bells are fastened, and buttoned to his legs.

BEY, in Geography, a small town of Switzerland, in the
canton of Berne, about 4 miles N.S.E. of Aigle, and 5 miles
from the fast-works at Berneck. [BEY, BEX.] Between
Aigle and Bex is a pictured view of the castle of St.
Trophoin, on the summit of a lofty rock in the middle
of the plain; it is built of a fine brown wood, and resembles
Milton's description of a manor, c.

"... and hight in torted tree,"

It is said to be built of tile, and probably of a beauti-
ful black stone in the ancient, St. Trophoin was a
Phrygian, and is said to have left the picture at Nice
in the year 251, under the protection of the emperor
Diocletian.

BEXQUIILLO, in the Materia Medica, a name given to
the white pericanta, which the Spanish bring from Peru, at the ports of the coast in Brazil.

BEY, or BEY, denotes a governor of a county, or town,
in the Turkish empire.

The Turks use the word beyl, or Bahl, to designate
by" p. one of their nobles, or lords, but in modern speaking to a
baronet, whom in English they call
fickel, or Bahl, which is a derivative of the
word Bahl, which probably has its
origin in the Arabic word Bah, which is the
expression of love, or kindness, but under them
is considered of a more polite phrase, and later is
often the subtitle of a poem. But under him
are some 2,000; of the pasha, 1,000.

In practice in Turkey, there are a great many

fungi, or lycera, each of which qualifies a bey; and these
are all commanded by the governor of the province, whom
they also call also dehler-dehler, or Beyler-bey, i.e. lord of the
lords, or bey of the province.

These beys are, in a great measure, the same that ban-
nerets formerly were in England.

It has already been observed, under the article Bahnar,
that when the military autonomy of the Mamluks in
Egypt was abolished by Selim, Sultan of the Ottomans in
1557, he established a form of government, which was cal-
culated to preserve all the different branches of the state in
a condition of dependence upon himself. With this view, he
appointed, besides a pasha, a divan, or council of regency,
composed of the pasha and the chief of the seven military
Corps. At the time of this appointment it agreed, that the
seven governors, or beys of the provinces, should be chosen
from the Mamlouks; and to them were entrusted the care of
reforming the Arabs; superintending the collection of the
tributes, and the whole civil government of the country;
but their authority was purely passive, and they were to be
considered merely as the instruments of the determina-
tions of the council. By this institution, which is still
observed in many instances, it was ordained, that the pasha should be
contented to share the power of the beys, and that the
duration of his authority should depend on their collective
will. The power of the pasha was very extensive; but it
has been gradually diminished, and almost annihilated by
the intrigues and ambition of the beys. His jurisdiction
was rather civil than military. He was always president of
the divan, which was held in the castle where he resided.
But that council has, in later times, commonly assembled in
the palace of one of the chief beys, except when a firman
or mandate is received from Constantinople, when the
beys are summoned to the castle to hear the commands of the
Porte. The few who attend, as soon as the reading is
finished, answer, as is usual, "Efimana wa talaa," "we have
heard, and we obey;" but on leaving the castle, their gen-
eral voice is "Efimana wa awfana," "we have heard, and shall
disobey." All these beys had been Mamlouks, or military
slaves, who were not natives of Egypt, but imported when
very young from Georgia, Circassia, and Mingrelia,
and purchased for 50, or not more than 100 sequins. Many of
these are descended from Christian parents, and have been
slaves from their youth. Some laws have been professed,
taken from the Aulfrans and Raffian, who have exchanged
their religion for an establishment. When the supply
obtained in this way proves insufficient, or may have been
expended, black bees from Cuba, and other minor parts of
Africa, are substituted in the room of the older, and
found diocese, are armed and accounted the like. The
Mamelukian in general, and the Egyptians in particular,
treat these slaves with great kindness. At Cairo, when a
case is locally purchased in the market, if he feel detec-
ted with his master, he has only to say, "May God be
with the master," and the man readily compells his master
for his help. The child of a slave, though begotten by his
master, is "upbodied," and a free may authorize a free
person to purchase his emancipation. The Christian
children, bought by the beys, and the principal officers
of Cairo, are educated with the same care, or their own
children; every young man necessary to render the character of a
Mamelukian good. They are instructed in military, as well
the exercise of agility and strength, and in the various duties
attendant on the defence and beauty of their province;
and the law is exacted from all, but many may not
obey. When that custom is finished, they go
the complement of the army; and after training, he
they have been received with lively gratitudes. No
affection to the generous masters, to whom they owe their fortunes, and both their political and moral existence; nor do they ever quit them in the hour of danger. Thus it often happens, that a master, when he finds any of his slaves possessed of extraordinary talents, and tried fidelity, spares no pains or expense to raise him to a more considerable employment than that which he himself occupies; and thus he at length acquires sovereign power. In order to attain this power, it is necessary to be a Mamlouk, that is, the native of a foreign country, as even the children of those who rise to office by flate, do not enjoy the right of succession. Hence it happens, that as the son of a bay is not honoured with any particular confidence, the women, perhaps, procure abortions. Of 18 bays, whose history was known to Mr. Browne, only two had any children living. Volney observes, that during 530 years Mamlouks have been in Egypt, and that not one of them has left an legitimate issue; but all their children perish in the first or second defect. Hence he infers, that those who are transferred from the vicinity of mount Caucasus, to the banks of the Nile, are incapable, by the influence of the climate, of perpetuating their progeny. To this circumstance it is owing, that the Mamlouks are replaced by slaves brought from their original country. From the time of the Mogul, this commerce has been continued on the confines of the Cuba and the Phasis, in the same manner as it is carried on in Africa, by the wars among the numerous tribes, and by the misery of the inhabitants, who sold their own children for a subsistence.

Distinguished by favouritism or merit, the Mamlouk becomes a caicn or kiaichef, and in time a bay. The chief cause of preference arises from political adulation to some powerful leader. The number of these bays has seldom or ever been complete; and the revenues of the vacant places were probably shared among the rest, who were actual occupants of their office. Each of these bays is nominally chosen by those that remain; but in fact appointed by one of the most powerful.

The "Yen-tchery Aga," and several other officers, are enumerated among the 24 bays. Besides being governors of certain districts of Egypt, several of the bays receive other dignities from the Porte. Such are the "Shebek-el-belud," or governor of the city, which is an office merely civil, unaccompanied with any military power; the "Defterdary," or accountant-general; the "Emir el Hadj," or leader of the sacred caravan; and the "Emir el Said," or governor of the Upper Egypt; which last two offices are annual. These officers have also revenues allotted them by the Porte, ill-defined, and liable to much abuse. Of the other bays, each appoints all officers and governors within his district, putting into it some flave of his own, who is compelled to render an account of the receipts; of which a part is appropriated to support the grandeur of his master. An opulent bay may have from 600 to 1000 purses annually; the revenue of Murad Bey more than double that sum. The inferior bays may have 300 purses, or 15,000 l. The revenues of the bays are raised by a land-tax and the produce of the customs, amounting together to near two millions sterling, of which but a small proportion reaches the coffers of the Porte. Every bay sits in judgment on cases of equity. These personages are very observant of their respective jurisdictions; and no bey will imprison a man liberated by another. Although sometimes too impetuous, they nevertheless display great acuteness and knowledge of characters. This government poises itself at least every advantage of publicity, as every bey is a magistrate. But the justice of the rulers is ever liable to the omnipotent influence of gold. Each bey appoints his captives, or lieutenants. These officers preside over a town or village, collecting the revenues, and judging small causes; but an appeal lies to the bey. The bays and the caicnes are, from their ignorance, constrained to employ Copts as acountants in adjusting and receiving the revenues, that duty being of an intricate nature, and requiring great local knowledge. The authority of a caicne is as arbitrary as that of a bey.

The bays in Egypt have been gradually acquiring an increase of authority and influence, and reducing the power of the Ottoman Porte to a feeble and degraded state. To this several circumstances have contributed; such as the unrestrained traffic of slaves; the neglect of the affairs of this province on the part of the Ottoman Porte; the extension of the power of the divan, and the restraint of that of the pachas, and the consequent uncontrollable influence of the janizaries and Arabs. To which may be added the change that took place in the condition of the soldiers, by their becoming citizens, and by the marriages they contracted, and the change also introduced into their discipline; and, more especially, the permission granted to the chiefs of possessing distinct property, lands, and villages, dependent on the Mamlouk governors, whom it became necessary to conciliate, in order to prevent their opprobrium; and the ascendency acquired from that moment by the bays over the soldiers, and increased by the great riches accruing from their governments. These riches they employed in multiplying their slaves; and, after emancipating them, advancing them in the army, and promoting them to various employments. By such means Ibrahim, one of the kiaias or veteran colonels of the janizaries, rendered himself, in 1746, master of Egypt; for he had multiplied and advanced his freedmen, that of the 24 bays, which should be their number, no less than eight were of his household. His influence was also the more certain, as the pacha always left vacancies in the number, in order to receive the emoluments. On the other hand, the largeflses he bestowed on the officers and soldiers of his corps, attached them to his interest, and Rodvan, the most powerful of the Arab colonels, uniting with him, completed his power. The pacha became a phantom, and the orders of the sultan vanished before those of Ibrahim. At length, about the year 1766, Ali Bey gained a decided ascendancy over his rivals, and under the titles of "Emir Hadj," and "Shebek el Belde," rendered himself absolute master of the country. (See Ali Bey.) Mohammed Bey, surnamed "Aboudahab," or father of gold, from the luxury of his tent and caparisons, which succeeded him in 1773 during a reign of two years, displayed nothing but the ferocity of a robber, and the bafeness of a traitor. Upon his death in 1776, Murad, a favourite of Mohammed, was advanced to the dignity of bay; but he had a formidable competitor in Ibrahim, who had been a slave of Ali Bey the Great. The two rivals, however, adopted conciliatory measures, and entered into an agreement to divide the authority, on condition that Ibrahim should retain the title of "Shebek el Belde. This union was a prudential measure, and necessary to their safety; for since the death of Ali Bey, the bays and caicnes, who owed their promotion to his house, repined at seeing all the authority transferred to a new faction; and after several intrigues and cabals, formed a confederacy, under the denomination of the house of Ali Bey. The chiefs of this confederacy were Hassian Bey, formerly governor of Dji-dja, and Ismail, the only remaining bey of those created by Ibrahim Kiaya; and they conducted their plot so well, as to oblige Murad and Ibrahim to abandon Cairo, and retire as exiles into the Said. These exiles, being reinforced by the refugees, returned, and compelled the confederates, Ismail and Hassian, to make their escape.
escape into the Said. Ibrahim and Murad have since ruled Egypt, the former as "Sheikh el Belled," and the latter as "Deffer-dar," though not without mutual jealousies and attempts to destroy each other. They, however, conspire together to recruit the number of the Mamlouks, and to collect treasure from all quarters. In the year 1791, Sahib Aga, a slave of Murad Bey, was deputed, from the government of Egypt, to negotiate their peace with the Porte. He carried with him presents of horses, rich stuffs, &c. He was well received, and was afterwards appointed "Waqi'd el Sultan," i.e. agent or attorney to the sultan in Cairo. This office was probably given him to engage him in lobbying the courts for the accession of the bey; but it was ineffectual. These had formerly experienced the evils of division, and were now united by common interest, grown rich, and well provided with slaves. It is said, that no tribe has since that time found its way to Constantinople. Ibrahim and Murad are considered as usurpers by the bey of Upper Egypt, who are favoured by the Porte. The most powerful house is that of Ibrahim, who has about 600, according to Volney, but about 1000, says Mr. Browne, Mamlouks. Next to him is Murad, who has not above 400 Mamlouks, says Volney; but according to Browne, they amounted, in 1796, to about 1700. He was originally a slave of Mohammed Bey, and succeeded in defeating and taking prisoner Ali Bey the Great. He is detested by the Porte. He is described by Sonnini, as handsome and martial in his appearance; his chin is covered with a thick black beard; his thick eye-brows describe arches of ebony over his large eyes, which sparkle with vivacity and fire. A long fear in one of his cheeks adds to the fierce part of his countenance. To great bravery, he joins singular address and extraordinary strength. He has been known, when riding by an ox, to cut off its head with one stroke of his scimitar. An intrepid warrior, capable of enduring the severest hardships, an excellent horsemanship, dexterity and power in the use of the saber, courageous in adversity, bold in enterprise, cool in action, but terrible in onset. Murad, with instruction, might have become a great general. His proud deportment, and magnificent disposition, give him the dignified appearance of a sovereign; but iniquity, ignorance, and cruelty, have rendered him a ferocious tyrant. Murad, says Mr. Browne, is one of those beys who can neither read nor write. Of the profusion of this bey, Sonnini has given the following account. In his camp were erected immense tents, divided into several apartments, for the accommodation of himself and his principal officers. The floors were covered with the most beautiful carpets, and the interior decorations consisted of the richest gold and silver fluffs that the manufactories of Lyons could afford. Nothing could equal the magnificence of his cavalry. Gold and silver ornaments, with the choicest embroidery on Morocco leather, glittered with a dazzling lustre in the rays of a burning sun; and the brilliancy of the saddles, trimmed with a broad gold lace, were made of those handsome velvets, the small and delicate patterns of which display the elegant taste that prevails in the productions of the manufacturers of Lyons. His profusion is supplied by his rapacity. He is accustomed to have from the mint daily, for his pocket expenses, 500 half mabulbes; and his wife the same. This amounts to 1500 piastres, and is only a small part of his disbursements. He is married to the widow of his master, the daughter of the celebrated Ali Bey. Next in power to Murad, is Mohammed Bey Elia, whose name imports that he was bought for 1000 piastres. His master was Murad Bey; but mentioned. He represented as quick in apprehension, and impetuous in action. His power is great and menacing; he has two Mamlouks. Ibrahim Bey, "el Ualb," a name derived from the second military magnificence in the city of Cairo, is a young man about the same age with the last mentioned, of a sedate, but firm character, married to the daughter of the elder Ibrahim, and attached to his interests. He has 6 or 700 Mamlouks. Alih Bey, "al Zogheir," or junior, is another powerful leader, distinguished by his superior capacity, and on all occasions consulted by the bey. He has no many Mamlouks; he is prudent and economical, and rarely acceded to extortion. Fatima, now the aged daughter of the famous Ali, is held in much respect by all the beys. Even Murad, her husband, treats her with reverence. When a bey is appointed to a government, he never fails to pay a visit to this old lady, who attentively to his duties, and will say to him, "Do not pillage the people; they were always spared by my father."

Of the systematic capacity of the beys, the following instance is mentioned. Ibrahim Bey, at a felicity occasioned by the marriage of his daughter to another powerful bey in 1792, invited to his house a famous figner, who had been employed, during the preceding day and night, in the exercise of her profession, and who had received considerable donations. She readily complied, expecting employment, and liberal remuneration. The bey asked her: "How many half rixdouns did you collect yesterday?" She replied, "about ten thousand." "Pay me eight thousand then," said the bey, and "I will give you a note of credit on Ibrahim Jouhari, my secretary." The money was paid, but the woman was turned out of the house without receiving any security whatever; and is said to have died of the disappointment. Volney's Travels through Syria and Egypt, vol. i. Sonnini's Travels in Upper and Lower Egypt, p. 444, &c. Browne's Travels in Africa, &c. p. 47, &c. See Bashaw, and Mamlouk.

Bey of Tunis, denotes a prince, or king thereof; answering to what at Algiers is called the dey. He is chosen out of the army; each order, even the most inferior, having an equal right and title to that dignity with the highest.

In the kingdom of Algiers, each province is governed by a bey or vice-roy; who is appointed and removed at pleasure by the bey; but has a despotic power within his jurisdiction; and at the season for collecting the tribute from the Arabs, is assisted by a body of troops from Algiers.

The kingdom of Tunis is not divided into provinces, like that of Algiers, and governed by provincial beys, or vice-roys; but the whole is under the immediate inspection of the bey himself, who collects the tribute in person. For this purpose, he visits, with a flying camp, once every year, the principal parts of it; travelling, in the summer season, the fertile country in the neighbourhood of Kef and Bajj; and in the winter, the several districts between Kairwan and the Jerved.

BEYAH, in Geography, anciently called Brayfisla, and the Hypophis, or Hypophis of Alexander, a river of Hindostan, that rises in the great chain of snowy mountains, extending from Sirinagar, to the north of Cashmere, or the ancient Imaus; and after traversing the Punjab, it joins the Sondez at Peshawur; about 24 miles below the conflus, a separation again takes place, and four different streams are formed; the northward and most considerable of which recovers the name of Brayah, and is a deep and rapid river. The others are named Herani, Dond, and Noornay; and near Mountan they unite again, and bear the name of Sondze, until both the subflance and the name are lost in the Indies, about 80 miles, or three days' sailing, by the course of the river, below the mouth of the Chunnah. Renell's Men. p. 102.

BEYENBERG, or BIENBERG, a town of Germany, in the
the circle of Welfphalia, and duchy of Berg, on the Wipper, 3 miles north of Lenep.

BEVERLAND, an island belonging to Holland, situated on the Meuse, with a town of the same name; 4 leagues west of Dort.

BEYERN, a town of Germany, in the circle of Swabia, and county of Fuftenberg, situated on the Danube, 6 leagues from Durlingen.

BEYHARTING, a town of Germany, in the circle of Bavaria, 24 miles E.S.E. of Munich.

BEYKE. See Beri.

BEYLA, a town and district of Abyflinia, in Sennar, about 11 miles west of Teawa, and 31 1/2 miles due south, in lat. 31° 42' 4". Between Teawa and Beyla there is no water. Immedegmeda, and a number of villages, were supplied with water from wells, and had large crops of Indian corn about their poltfections. But the Arabs Daraeina have destroyed these places, filled up their wells, burnt the crops, and expelled all the inhabitants to die by famine.

BEYMONT, or BREWORT, a town of Germany, in the bishopric of Liege, 3 miles south of Liege.

BEYNAT, the chief place of a canton, in the district of Dives, and department of Corcoze, containing 1462 inhabitants; those of the canton being 5488. The territory comprehends 133 kilometres and 6 communes.

BEYS, GILLES, in Biography, a printer at Paris, in the 16th century, who first introduced into his editions the distinction suggested by Ramus in his grammar between i and u consonants, and the vowels i and u. He died in 1595.

BEYSZKER, (Geofa Tychert.) in Ichthyology, a name of the cobitis fuscis. Gmelin.

BEZA, THEODOR, or THEODORE DE BEZ, in Biography, an eminent divine among the first reformers in Geneva, was born of parents nobly defended, in 1519, at Vezelay in Burgundy, and sent by his uncle, who was a counsellor in the parliament of Paris, to Orleans, in 1528, to be educated by Melechir Wolmar, a protestant, and an excellent teacher. Having continued seven years under his tuition, he commenced the study of the law at Orleans; but his taste led him to the cultivation of polite literature, and he composed several Latin poems, which were confederated by the learned as a promising specimen of his talents. After taking a law-degree, he returned, in 1539, to Paris, where his parents, who had intended him for the ecclesiastical profession, had procured for him a valuable abbacy. Addicted to the delights of an easy and voluptuous life, he remained for some years at Paris; but under the influence of sentiments imbied in his youth from his protestant preceptor, he determined sooner or later to break his fetters. A marriage contracted from confecientious motives rendered it necessary for him to resign his benefices, and hastened in the execution of his purpose by the reflections attending a severe illness, he and his female companion fled, in 1548, to Geneva. In the following year he accepted the offer of a Greek prebendaryship at Lausanne, in the exercice of which he continued with reputation for nine or ten years. Here he read lectures in French on the New Testament, and published several books; one of which was a tragi-comedy, in French, entitled "Abraham's Sacrifice," which passed through several impressions. Having frequent opportunities of visiting Calvin at Geneva, he was induced by his persuasion to finish the version of the Psalms, which had been begun by Marot. During his residence at Lausanne, he published a treatise, "De Hereticis et Magistratibus pontificis," in reply to a book written by Caflalo, after the execution of Servetus; and in this treatise he maintained a doctrine so leis dangerous in its tendency than inconsequent with his principles as a reformer and protestant, that it was the duty of the civil magistrate to punish hereby. He also wrote on predetermination, and the eucharist, in opposition to the Lutherans, and others, and in a style of militery which a natureur judgment and after-reflection led him to correct. In 1558, he was elected as one of the deputies summoned by the protestants, to engage the German princes in favour of their brethren imprisoned at Paris, and of the perfécuted inhabitants of the valleys of Piedmont. In the following year he removed to Geneva, where he became the colleague of Calvin, both in the church and university, and where by his abilities, learning, and zeal, he co-operated with him in advancing the reformation. In 1561, he distinguished himself by his eloquence on behalf of the protestant party, at the conference of Poissy; although he gave offence by his declared opposition to the doctrine of the real presence. Continuing in France, he attended the prince of Condé as a minister, when the civil war broke out, and accompanied him to the battle of Dreux. Upon his return to Geneva, in 1563, he wrote several books in theological controversy, with an acrimony that cannot be justified by perfons of moderation and candour. In 1571, he officiated as moderator in the national synod of Reoch ré, and in the following year assisted at that of Nîmes. In 1586, he held a disputation with Andreas, a Lutheran divine of Tubingen; and through the whole course of his life, the party to which he belonged availed itself, on many occasions, of his talents and reputation. Having lost his first wife in 1588, he soon married another. Although the infirmities of his advanced age required his withdrawing from the duties of public instruction, the admir of his genius remained to the close of his life, and he wrote Latin verses a few years before his death, which happened in October 1665, after he had passed his 86th year. Of his singular natural talents and literary acquisitions no doubt can be entertained; nor need we wonder that bigoted Catholicks should have calumniated him whilst he lived, and reviled his memory after his death. He has indeed, by his enemies, been unjustly traduced as a hypocrite, and a perfó of lax morals; but charges of this kind are refuted by the uniform tenour of his life. His partial advocate, however, much regret that, as a disputant, he was violent, impetuous, and dogmatical, and deficient in candour and charity. His juvenile pieces, in Latin poetry, in which critics have detected many numerous deviations from classical purity, were first printed in 1548. Some of these, with corrections, together with others of a more serious cast, were printed by the Stephenfes at Paris, in 1597, 4to, under the title of "Theod. Bezæ Poëmat. varia." His French works are of an inferior kind. His theological works are numerous. Of these, the most generally read, and the most highly esteemed, is his "Latin version of the New Testament," with critical and theological remarks. For an account of the MS. in his possession, see CAMBRIDGE MS. Gen. Dict.

BEZABA, in Geography, a river of Spain, which runs into Orio, in the province of Guipúzcoa.

BEZABDA, or GOZERTA, Geozert cho- Omar, in Ancient Geography, a town of Aasia, on the right bank of the Tigris, south-west of Tigranocerta, in the country called Zabdi- cana.

BEZANT, represents, in Heraldry, round flat pieces of gold. They were first borne by the soldies of the holy wars, being the current coin of Byzantium (the modern Constantinople), with which the sigs of the army were discharged, and from whence they took their name. They are always embazoned gold, but the foreign heralds make them both gold and silver.

BEZÀNTTE, is when the field is powdered with bezants, or when supporters, or crests, are crowned with them. The proper heraldic term is bezant. When a
BEZ

BEZANTIER signifies the second branch of the horn of a hart or buck, that sweets from the main beam, and is the next above the brow-antler.

BEZARA, in Ancient Geography, a town of Galilee near the Sea, south of Ptolemais.

BEZELKINO, in Geography, a town of Siberia, 80 miles north of Balaganskoi.

BEZDZIEZ, a town of Lithuania, in the palatinate of Brzez, 24 miles west of Pinsk.

BEZE, a town of France, situate near the source of a river of the same name, in the department of the Côte d'Or, and chief place of a canton, in the district of Is-sur-Tille. 24 leagues E.S.E. of it.

BEZER, or BEZARA, in Ancient Geography, the place where Saul reviewed his army, before he marched against Jabshe-Gilead. 1 Sam. xi. 8. Enebius mentions two cities of this name, near one another, 7 miles from Sicheim, in the way to Scythopolis.

BEZENSTEIN, or PETZENSTEIN, in Geography, a town of Germany, in the circle of Bavaria, and territory of Nuremberg, 19 miles N.E. of Nuremberg.

BEZER, in Ancient Geography, a city beyond Jordan, over-against Jericho, in the wilderness, assigned by Moses to the tribe of Reuben, intended by Joshua to be a city of refuge, and given to the Levites of Gerhom's family. Deut. iv. 49. Josh. x. 21. The vulgate in both places denominates it BEZIER. Enebius confounds it with Bethra of Arabia, which lay much farther to the east. See BOSTRA.

BEZETH, a city of Philistia, on this side Jordan, in the territory of Jerufalerm, which Bachiades surprised, and the inhabitants of which he threw into a pit; probably the name with Bezechath. 1 Maccab. vii. 19.

BEZETHA, or BETSETA, a division or part of Jerusalem, situated on a mountain, and encompassed with walls, built by Josephus, a new city attached to the old one, and called in Greek SELEUKI, Canopus. It lay north of Jerusalem and the temple.

BEZETZ, in Geography. See BETSESH.

BEZILEI, a town of Transylvania, 12 miles N.N.E. of Focsita.

BEZIER, a city of France, and principal place of a duchy, in the department of the Herault, situated on the left bank of the Orze, not far from the grand canal. Before the revolution, it was the residence of a governor, and a seat of a bishop, of the diocese of Narbonne; its cathedral was small, but beautiful; it had besides a collegiate church, several religious houses, two hospitals, a college founded by the inhabitants in 1599, and an academy of sciences and belles letters. It is surrounded by a wall, flanked with old towers, and defended by a moat.

The number of inhabitants in both its sections is estimated at 14,221, and the population is small in proportion to its extent. The canton of the feudal fief has 11,423, and that of the feudal 1,174. The former has 9, and the latter 7 communes. The territorial extent of both comprehends 556 square kilometres. The situation is healthy, and it commands a view of several cities of the grand canal of Languedoc. In the Not. Int. it is called "Citius Bateraertis, Moderna Septimania." In the 5th century it was ravaged by the Vandal; in the Saracens, in 729; by Charles Martel, in 737; and by John, Count Montfort, in 1229; when the city was destroyed. Allegro took it by assault, and put to flight 10,000 of the inhabitants to the sword. Since this time it has not recovered its ancient litte. It was re-united to the crown by S. Louis, in 1247.

Its territory is fertile in corn, oil, and wine. It has also mineral waters. N.lat. 43° 26' 41". E. long. 3° 12' 55".

BEZIRA. See BAZIRA.

BEZOAR, BEZIARD, primarily denotes an antidote, or counter-poison. The word is formed from the Persian paz-sahr, which denotes the same, pā signifying against; and subar, poison.

BEZOAR, LAPIS BEZOARDICUS, is a term applied in a general way to various substances found in the stomach, intestines, and other internal cavities of the bodies of quadrupeds.

The true bezoar, however, is a calcined concretion, usually formed in the stomach of some of those animals which ruminate, or chew the cud. There are two forts of the bezoar stone; one is brought from the East Indies, and Peru, and thence known under the name of Oriental bezoar. The other kind comes from the Spanish West Indies, or South America, and is called Occidental bezoar. The Oriental is considered by far the more valuable kind, and is exceedingly scarce, even in India. The larger the stone the more highly it is esteemed; its price increasing, like that of the diamond, in proportion to its size. A stone of one ounce has been sold in India for 100 livres, and one of six ounces and a quarter for 2000 livres. The price of the smaller stones, in Germany, in the year 1600, was from 16 to 32 ducats the ounce; but it had then much declined. The larger bezoars had no regular price, being often extremely dear. As long as it retained its fancied reputation, as an antidote to every kind of poison, and as a cordial for the support of life under the most tryling circumstances of disease, its price was advanced beyond its weight in gold, and it found a high place for many centuries among the most costly collections of precious stones. The size varied from that of a pea to a hen's egg, or even larger.

Boetius relates, that in his time, the emperor Rudolph II. possessed one of the size of a goose's egg, which he ordered to be hollowed out into a cup, when the nucleus was found to be a small mass of herbs full strongly aromatic. The most anciently known bezoar stones were procured from the stomachs of goats feeding in the mountains of Peru, and those from the mountain goat were in such high request, that the emperor Shah-Abbas (who died in 1628) claimed all above a certain standard as a royalty, and appointed collectors for the purpose. The Oriental bezoars passed through the hands of the Armenians and Peruvian merchants, and were formerly brought to Europe in considerable quantities. In the east, the were the most esteemed that were obtained from goats feeding in the mountains, as the aromatic herbs found there were supposed to add much to the virtues of the calculi.

Authors disagree with respect to the animal in which the genuine Oriental bezoar is found; some attribute it to a species of goat, others to the antelope genus. Most naturalists allow this substance to belong to the gazelle. Antilope gazella, Gmel. Aldrovandus calls the species of antelope, Antilope gazella; Linnaeus, capra bezoardica; and Pennant, the gazelle ashen. Pallas, however, in his Spicilegium Zoological, gives the same name to the Egyptian antelope, (Antilope Oryx, Gmel.) Cuvier describes the Oriental bezoar as being found in the intestines of the capra napagi of the Lusitan system, and Gmelin ascribes it to the capra capraria.

By the account of Chabi, the animal furnishing this secretion would seem to be larger than the goat, and more resembling the Nylogan. These can be little question but similar substances have been occasionally met with in each of these animals, and in several other species.

The bezoar stone, when genuine, varies much in its form; depending upon the size of the nucleus upon which the calculous matter is deposited, there being generally some foreign...
foreign body in the centre of the bezoar. The substan-
ces which usually serve for nuclei to these concretions are straw, 
hair, small pebbles, nuts, hard seeds, stones of fruit, &c.
and the most frequent nucleus of the real oriental bezoar, 
is the pod of a fruit, much like that of the Acacia vera 
Egyptiana: though it at first sight resembles a coffee, or 
tamarind bean. In some of the bezoar stones formed on this 
crout, the outer membrane of the bean having perished, and 
the bean shrunk in drying, there remains a vacuity between it 
and the inner surface of the bezoar, so that it rattles within 
it, when shaken, in the manner of an oyster, or eagle stone. 
It is of little moment what the figure or nature of the body 
may be, which is to serve the purpose of a nucleus, as it 
cannot, in the slightest degree, affect the quality of the cal-
culus substance which is to be collected on its surface; any 
extraneous matter will suffice for this purpose, which may 
happen by any accident to be long enough detained in the 
flomach or intestines. The formation of bezoars ap-
pars to be effected in a manner similar to that observed in the 
production of the calculi of the urinary bladder of the 
human subject. We may presume that the bezoar is only 
formed when there is a tendency in the animal to generate an 
extraordinary quantity of calculous matter; for if it were 
otherwise, as these substances were produced by any 
combination of the ordinary contents of the stomach and 
intestines, what animal, that is liable to such collections, 
could ever be without them? whereas, on the contrary, 
they are so scarce in the East, that those which are 
brought into this country are supposed to be in general 
artificial compositions; nay, some have doubted if we ever meet 
with a genuine oriental bezoar in this country.

The feast of the year also appears to influence their 
production. Camerarius remarks, that these bodies begin to 
form towards the month of November; and when the Paris-
ians anatomiasts discovered a bezoar in the stomach of the 
Cha-mois (Antilope Rupicarpa,) it was the month of December. 

The number of bezoar stones varies, in different animals, 
from one to ten; hence, it is said to be customary, previous 
to purchasing a bezoar animal, to reckon the number of 
stones it contains, which can be ascertained by feeling exter-
nally, and by this the price of the animal is regulated. 

Velchius affirms, that the bezoar is only found in the 
first or second stomachs of ruminant animals, but the anatomiasts 
of the French academy state, that they met with it in the 
third stomach; and others have mentioned its being some-
times situated in the intestines.

All bezoars are made of concentric layers, or by stratum 
super stratum, after the manner of the common urinary 
calculus. This proves their formation to be gradual; and 
as this mode of increase cannot be easily imitated, it is prob-
able one of the best marks for distinguishing the genuine 
bezoar from that which is counterfeited.

The oriental bezoar is smooth and glossy on the surface, 
the colour a dark green or olive; on removing the outer 
coat, which lies next it appears likewise smooth and 
shining; it is generally less than a walnut; it is most ef-
tremely for its medicinal properties, and is the only fort 
retained by the London college. The Edinburgh college, in 
some of the former editions of their pharmacopoeia, directed 
both this and the occidental bezoar, but they now seem to 
allow them to be used promiscuously, retaining in their cata-
ologue only the name of lapis bezoar.

The imitations of this stone have been carried to such per-
fection, that as far as respects form, colour, or other external 
characters, the deception cannot well be detected. Mr. 
Neumann supposed that those which come nearest the genuine 
bezoar, are a composition of plaster of Paris, chalk, or 
other earth stained of the proper colour by some vegetable 
tincture. Those which are palpably counterfeited, are com-
pofed chiefly of some refractive substance, and may be easi-
discovered by their liquefying in the fire, and being soluble 
in spirits of wine; he never could discover any mark of an 
animal nature in any of these. Chemical works, by Dr. 
Lewis, p. 533, &c.

The models of trying if bezoar be genuine are, 1st. To im-
merge a portion of it, for some hours, in moderately warm 
water, when the water ought to remain untainted, and the 
stone undiminished in its weight: 2d. to apply it to a sharp 
red hot iron, which it should stick without frying or thriv-
elling: the 3d. which is considered the most certain experi-
ment, is to rub the bezoar over a paper which has been pre-
viously smeared with chalk or quicklime; if it leave a yellow 
tint on the former, or a green one on the latter, there is no 
doubt of its being genuine.

The occidental bezoar is uneven on the surface; of a dirty 
green colour; it is heavier and more brittle than the oriental, 
with which it is considered much inferior in value; it is of a 
looser texture, and when fractured, the layers appear thicker, 
and exhibit a number of fibres curiously interwoven. It is 
also found of a much greater size; sometimes being as large 
as a goose’s egg.

The occidental bezoar has been found in some of the camel 
tribe, especially the guanaco Camelus Huannacu and the Vienna 
(Camelus Pinguus,) which are inhabitants of South America.

This kind of bezoar, Mr. Neumann apprehends, is more 
likely to be an animal production than the other, because it 
yielded, on distillation, a small portion of volatile urinous 

The analysis of bezoar stones, as related by different 
chemists, is very contradictory, which has given rise to the 
opinion of the specimens which they submitted to experi-
ment, being spurious. Those stones examined by Scarr, as 
oriental bezoar, did not divide in acids. Those which 
Grew and Boyle made trial of, did. Those employed by 
Geoffroy (in some experiments related in the French Me-
moirs, 1715,) did not seem to be acted on by spirits of wine, 
whilst those specimens examined by Neumann, at Berlin, 
amost entirely dissolved in spirits. For an account of the anal-
ysis and chemical properties of the bezoar and similar sub-
stances; see CALCULUS.

In the early ages, when a knowledge of difcaeses was con-
fidered an occult and mysterious science, rare and unknown 
plants, or unifial, and what were considered wonderful 
animal productions, were chiefly employed in the way of 
meditcines; at this period we accordingly find the bezoar-
tic stone possessed great reputation as a remedy for many 
dificases; it owed, not doubt, much of its fame to the fabulous 
accounts which were related with respect to its origin.

It is not known to the Greeks. The first person who 
has mentioned it was Aesculapius, an Arabian physician. He 
defines it to be generated in the stomach, or gymnasium 
of the eyes of frogs, who, after eating serpents, were accustomed 
to run into the water up to the roof, where they swim till their 
eyes began to ooz a humour, which collecting under their 
eye-lids, gradually thickened and coagulated, and when it 
became quite hard was thrown off by the animal rubbing itself 
against the trees. Other stories concerning the history of the 
bezoar, equally wonderful and ludicrous, were credited, 
until the time of Garcias el Horto, physician to the Portu-
guese vicroy of the Indies, who gave the first true account 
of the origin of this substance. Kempfer afterwards gave 
a description of it with some new particulars.

The bezoar was first employed to prevent the fatal con-
sequences of poison. This is expressed by the very name which
BEZOAR

which is derived from the Persian word badzeichor, or bezezar, amakher, oramak, or from panthar, of which po signifies eggynin, and zahar, a foon. Others derive the term bezozar from the Persian pasar, a goat.

It was afterwards given in vertigoes, epilepsies, palpitations of the heart, jaundice, colic, and a great many other diseases; so that if its real virtues were answerable to its reputed ones, it would doubtless a panacea. Even later writers have bestowed extraordinary commendations on it, as a fudoric and alepharmic; but there is every reason to doubt its polishing any such virtues. It is an earthy substance, devoid of taste or smell. The history of its formation proves that it is not digestible, or otherwise affected by the juices of the intestinal canal. If it can ever be employed as a medicine, it should be on account of its absorbent quality, which, however, it appears to possess but in a very slight degree. It has been administered to patients in the quantity of half a drachm, and in some instances a drachm has been taken, without producing any sensible effect: the dose has been generally flated at a few grains, which were probably on account of its fecracy and great price. While it retained its medical reputation, it was laid to act as an antidote to every poison, vegetable or mineral, and to the bite or sting of all poisonous animals, in the dose of about 8 grains; but it would equally prove a counter-poison when taken regularly in the quantity of two grains daily, in a glass of wine, or especially of distilled water of carduus benedictus. To preserve a youthful constitution and vigour, an oriental's recipe is to take twice a year (purging being premised) ten grains of bezozar daily, for five successive days, with a cup of rofe-water. Bezoaric productions are at present so little regarded for their medicinal properties, that few druggists now think it necessary to have them in their possession.

BEZOAR, Equinox, is the name given to the calculous concretions occasionally met with in horse's. They appear to be formed in the same manner as the bezozar of the antelope or camel genus. They grow to a considerable size; have usually an irregular form, something between a comprehefed sphere and a rhomboidal figure; when divided, they exhibit the usual succession of flates, of which they are composed, but which are not so distinct as in the other bezozars; each layer is formed of concentric flizes, which are in many places more evident than the division into flates; consequently the section of the bezoar gives the appearance of its having been made of radiated, rather than concentric layers. The surface of the calculus bears great resemblance to a piece of polished lime-flone.

BEZOAR, German, is called by some cow's egg, from the circumstance of its being occasionally found in the flomachs of cows, but the animal from which it is most commonly obtained is the shamois (Antelope Rupicapra).

The nucleus of the German bezozar is either the hair which the animal may have swallowed, when licking itself, or the fibres of undigested vegetables, which are rolled into a round smooth ball. The quantity of calculous subfstance which is collected upon this ball is in general very trifling, often being merely a thin pellicle.

The bezozar which was found in the shamois by the Persian academicians, was made up of the woody fibres of the plants the animal had eaten; it was smooth and beflowered with mucus on the surface; and was broken at one end, exposing a cavity in the centre of the ball, which had formerly, no doubt, been occupied by some solid subfstance, such as a pebble, or done of some fruit.

German bezozars have been found, according to Bartholin, and others, in horse's and sheep, in which they are chiefly composed of wool, which these animals accidentally swallow.

From these species of bezozar having little, if any, calculous matter in their composition, they have been called by some writers, with propriety, baggzepilh; which see, and Bals.

Besides what have been already described, there are concretions found in the gall bladder of animals, to which the term bezozar has been applied; these appear to be no other than biliary calculi.

The Hog, or Bear Bezozar, called by the Dutch Pedra de porco, and by the Portuguese, who first brought it into Europe, Pedra de vacaria, is found in the ball bag of an East India boar; in form and magnitude it resembles a fteril, though more irregular; it is most commonly white, with a tinge of green; the surface is smooth and shining, and is valued at ten times its weight in gold.

The Indians attribute extraordinary medicinal powers to this bezozar. They call it Moglica de jaba, and prefer it to that obtained from the Gazelle; they consider it a sovereign remedy for the merdon, a disease to which they are liable, and which is not less dangerous than the plague in Europe. They allow it to have great efficacy also in malignant fevers, small-pox, and most diseases of women not with child, it being supposed to produce abortion in those who are pregnant, if they use it indirectly. When it is to be used as a medicine, it is infused in water or wine, until it has communicated a little bitterness to it. To facilitate the infusion, and at the same time preserve to precious a tione, they usually inclose it in a gold case, which is pierced with holes.

The Porcupine and Monkey Bezozars, are also the biliary calculi of these animals. Tavernier afferts, that they are not taken from the gall bladder, but the heads of the ape and the porcupine, which is highly improbable, and contrary to general anlyysis; he calls them Malaca flones, and says that they are held in such estimation by the inhabitants of Malacea, that they never part with them, except as presents to ambassadors, or the greatt princes of the Eait.

According to Neumann, single flones, taken from the porcupine or monkey, have been sold for sixty and eighty pounds sterling.

It is not impossible but that those bezozars which are formed in the gall bladder may possess some power as medicines; perhaps also solutions might be employed with advantage in surgery, but their great reputation amongst the Indians seems to arise altogether from ignorance and superstition.

BEZOAR, bovinum, is a yellowish flone, found in the gall bags of the ox. It has been used by miniature-painters in several calls of yellow.

BEZOAR, in Conchology, a species of Buccinum, that inhabits China. This shell is subround and rugose: anterior part of the whors lamellated: pillar perforated. Cubital. The colour is dirty ochreous, varied with brown: within yellow; carafe, decussated with wrinkles, or striae: tal space, bent, rugose with imbricated leaves: spire angular with straight sides: anterior part flatish, plated, or dentated above.

BEZOARA, or Buzwara, in Geography, a town with a fort in the peninsula of India, situate on the north side of the Kifina river, distant 403 geographical miles from Madupatam. N. lat. 10° 35'. E. long. 80° 31'. In the town is a magnificent pagoda, and another stands on a eminence without it, which attract a great number of pilgrims, whose contributions are distributed in alms to the poor.

BEZOARDICS. The peculiar virtue of the bezozar being that of redding and expelling poisons; the term bezozar (now, however, nearly obsolete,) has come to be almost synonymous with antidote. Thus, when a bezozaric medicine is mentioned, it implies, with the older writers, either a Pp medicine.
medicine into which bezoar enters, or one that resembles the bezoar in its supposed power of counteracting poisons, or, afterwards, simplifying a cordial. A few medicinal preparations have had this epithet.


BEZOARDICUM TERRA, a name used by some authors for a medical earth dug in the pope's territories, and more frequently called TERRA SARRACENA.

BEZOARDICUM MINERALI, or Mineral Bezoar, is a perfect oxyd of antimony, made by adding nitrous acid to the butter of antimony, and described under the article Antimony.

BEZOARDICUM FEVERIAE, is a mixed oxyd of antimony and tin, formed by fusing together these metals, distilling with corrosive sublimate to convert both metals into a butter, or muriated oxyd, and adding nitrous acid to reduce them both to a perfect simple oxyd. It is entirely different.

BEZOLA, in Ichthyology, the name of a kind of Salmo, called by Giesey Albula carcades, and supposed to be in no respect different from Salmo Laronus.

BEZOUT, Stephen, in Biography, a celebrated mathematician of France, was born at Némours, March 19, 1736. O. S. and notwithstanding opposition on the part of his father, devoted himself to the abridgment and propagation of the mathematical sciences, to which his taste strongly inclined him. In 1758, he was appointed a medallist at the Paris academy of sciences, after having communicated two memoirs on the integral calculus, and affording other proofs of his proficiency in the mathematics; in 1763, he was nominated examiner to the marine; and, in the same year, member of the academy of marine affairs, and examiner of the pupils of the royal corps of artillery; and, in 1776, royal censeur. His particular attention was directed to the solution of algebraic equations, and he had the honour of first discovering a method of resolving a particular class of equations of all degrees. In this work of investigating the roots of such equations, he was occasionally engaged from 1762 till 1779, when he published his treatise on the subject. To distinguished talents, and elaborate researches in the abstruser parts of mathematics, Bezout added a judicious discharge of the duties of the public stations which he occupied, and a private character which was deservedly esteemed. The following anecdote furnishes a pleasing specimen of his regard to justice in the exercise of his office, and at the same time of the benignity and consideration of his temper. When two of his pupils were confined by the small-pox, and incapable of attending for the purpose of an examination, the want of which would have delayed their advancement for a whole year, he, ventured, though he had never had that disorder, to visit them in person, and to ascertain their proficiency, by which he was enabled to make a report in their favour. His constitution was at length impaired by his unremitting application, the fatigue of his various offices, and some personal chagrin; and he fell a sacrifice to a malignant fever, September 27, 1783, in the 54th year of his age. His publications were "A Course of Mathematics for the Use of the Marine, with a Treatise on Navigation," 6 vols. Svo. Paris, 1764; a "Course of Mathematics for the Corps of Artillery," 4 vols. Svo. 1770; "General Theory of Algebraic Equations," 410. 1779; with a considerable number of Memoirs, chiefly mathematical, in the volumes of the French Academy.

BEZOZZI, Alexander and Jeron, brothers in the service of the king of Sarhonia, at Turin, the most celebrated performers of their time; the one in the hautbois, and the other on the violin. These kindred instruments were rendered famous all over Italy during the middle of the last century, not only by the exquisite performance, but by the amiable regular character of these two brothers. Their long and uninterrupted affection and fidelity together, were as remarkable as their performance.

The eldest, when we heard them in 1770, was 70, and the youngest 68. The idonea interprete et idonea voce, as perfectly in tune as their instruments: so that they had always lived together in the utmost harmony, carrying their familiarity of taste to their very dressing, which was the same in every particular, even to buckles and buttons. They had lived for so long, and in such a cordial manner together, that it was thought, whenever one of them died, the other would not long survive him; which was exactly the case, both dying in 1780, within a few months of each other.

The composition of these exquisite performers generally consisted of select and detached passages, yet so highly polished, that like apothegms or maxims in literature, each was not a fragment but a whole; their pieces being in a peculiar manner contrived to display the genius of their several instruments and powers of performance. The eldest played the hautbois, and the youngest the violin; but it was difficult to describe their peculiarities of expression. Their composition, when printed, gave but an imperfect idea of their sweetnefs and delicacy: there were such a perfect acquittance and agreement together, that many of the passages seemed heart-felt sighs breathed through the same red. No brilliancy of execution was aimed at: all were notes of meaning. The imitations were exact: the melody equally divided between the two instruments; such forte, piano, crescendo, diminuendo, and appogiatura (see all these terms in their places), were observed with a minute exactness that could be attained only by a long residence and study together. The eldest brother had lost his under-front-teeth, and comprehended of age; and it was natural to suppose that the performance of each had been better: however, to me (says Dr. Burney), who heard them now, for the first time, it was delightful! If there was anything to commend in so exquisite a performance, it arose from the equal perfection of the two parts; which disdained the attention, except when in dialogue, so much as to render it impossible to listen to both, when both had diffamal melodies equally pleasing.

They were born at Parma, and had been upwards of 40 years in the service of his Sarhonian majesty, without ever quitting Italy, (except one short excursion to Paris, in 1755,) or ever Turin, but for that journey, and another to visit the place of their nativity. They were men of a sober, regular, and moral character; in easy circumstances; had a town and country house, and in the former many good pictures by the first painters.

The Bezzoezi family has furnished many admirable musicians to Italy, and other parts of Europe. Gastano Bezzoezi, a celebrated performer on the hautbois in the court of France's service, was born at Parma in 1737, entered into the service of the king of Naples in 1736, and into that of the king of France in 1765. We heard him perform a concerto at the concert spirituel at Paris in 1771, with great applause; and thought him superior to all whom we had then heard on the hautbois, except Fischer. His father, Joseph Bezzoezi, had taught the celebrated brothers at Turin, Alexander and Jeron, his brothers, to play on the hautbois and buffoon. "M. Bezzoezi of Paris," says Burney, "in 1780, had during 25 years meritised and enjoyed the highest reputation, as well as the esteem of all who knew him. His fon was
of this town is owing to the illustrious family of Bianchi, whose palace adjoins the town, and who have contributed to ornament their place of refuge. This palace is a large building, in the Italian taste, and, on account of its magnificence, generally called the 'Villa of the Popes.' It was formerly only a royal hunting seat, but given by John Calvin, together with Balliol, and other estates, to Czarnecki, a general highly distinguished by his victories over the Swedes, when Poland was nearly crushed by her enemies. Czarnecki left one daughter, who married Bianchi, the father of the late great general, and conveyed the estate into that family.

DIALOBORS, a town of Poland, in the patriciate of Lemberg, 48 miles S.W. of Lemberg.

BIANA, a town of Hindooistan, 20 leagues from Agra, which was formerly a large city, and included Agra among its dependencies. The town is still considerable, and contains many large stone houses. It was formerly the residence of a powerful rajah; but his principal city and fort were built on the top of an adjoining hill, and the present town was only a suburb. The whole ridge of the hill is covered with the remains of large buildings, among which, the most remarkable is a fort, called "Bigay-Murder," containing a lofty pillar of stone, called "Bleemlat," or the Teller of the lion's stat or staff. This pillar is conspicuous at a great distance. The town and district now belong to the "Ranjah Sing," the rajah of Bhirtipoor. This place is famous for its excellent indigo. N. lat. 26° 25'. E. long. 77°.

BIANCA, La, a town of Italy, in the kingdom of Naples, and province of Calabria Ultra, 12 miles N.E. of Bova.

BIANCA, Itál. for the note in music, which we denominate a minima; and the Fr. une blanche. This, though now almost the least note in use, three or four hundred years ago, was the shortest. See Time-Table, and Musical Characters.

BIANCHI, Francesco, called Il Frari, in Biography, an historical painter, was born at Modena, and was the disciple of the celebrated Antonio Correggio. His colouring was delicately fine, his attitudes graceful, and his invention very grand. His works poofleed an astonishing beauty, and are prized as highly as the stones of Correggio. He died in 1560. Pilkington.

BIANCHI, Peter, a painter of the Roman school, was born in Rome in 1694, and united with his talents as a painter the accomplishments of literature. He painted historical subjects, portraits, rural and natural scenes, animals, plants, and flowers, in fresco, oil, and enluminure. His reputation caused him to be employed in painting a picture in the church of St. Peter. He is said to have been a severe judge of his own performances, and to have destroyed many of his works after they were finished, because they did not please him. He died at Rome in 1759. Encyclopedic.

BIANCHI, John Baptist, born at Turin, Sept. 12th, 1681, of an ancient and respectable family. After being educated with the greatest care, and under the ablest masters at home, he was sent early to the university, and made such progress in his studies, that at the age of 17 he was admitted doctor in medicine, and was soon after made physician to the hospital, a situation for which he was peculiarly qualified, for being fond of anatomical pursuits, he had the opportunity, from the number of subjects a large establishment of that kind necessarily furnished, of dissecting and examining the human body at every age, and labouring under every species of disease or deformity. He had the happiness also of finding his talents properly cultivated by his brethren, and his labours rewarded, as he was advanced to be public teacher of anatomy at Turin, where his sovereign built for him, in the year 1715, a spacious and convenient amphitheatre. He also read lectures in philosophy, in pharmacy, chemistry, and on the practice of medicine. These honours were not however entirely without alloy, as he had the mortification to find his doctrines cenured by Morgagni, and by Haller, and even the existence of some parts he supposed he had discovered, disputed. The principal of his works are "Hijoria hepatica, seu de hepatis structura, usibus, et morbis," 1710, 8vo. Morgagni has published some severe criticisms on this work, in his "Adversaria Anatomica." It has passed, however, through several editions, and in 1725, was reprinted in two vols., 4to., with figures, "De larynx male novo, cornus usus, morbi, curatones," 1741, 4to., also cenured by Morgagni. "Storia de monasteri, de dio corpi," 8vo. 1749, the most laboured and perfect, Haller says, of all his works. He wrote also an history of the generation of man, with figures, in which he attempts to delineate the facts in its various stages, but the figures, Haller says, are principally fictitious. Many of his dissections are inserted by Mangeti in his "Theatrum Anatomicum." Haller. Bibl. Anat. et Chirurg. Eoy. Dict. Hist.

BIANCHI, John, born at Rimini, Jan. 3, 1693. After receiving a liberal education, he went to Bologna, where, in 1719, he was admitted doctor in medicine. Returning the following year to Rimini, he practised medicine there with success for many years. He revived the academy of Lynxus, a philosophical society, collecting the members together at first at his own house. In gratitude for this, a medal was struck, with his figure on the face, and on the reverse, a lynx, with the motto "Linceis reliquitus." His works are various, of which the principal are "A Tractate on the Cataract," 4to. 1720, in Italian. "Epistola ad Josephum Putyem," 1726. "De monasteri, et rebus monastica," 4to. 1749, and in 1751, an account of an impotumte of the right hemisphere of the brain, occasioning paralytic on the opposite side of the body. Eoy. Dict. Hist.

BIANCHINI, Francis, a mathematician and philospher, was born at Verona, Dec. 13, 1662, and devoting himself to the church, became a doctor in theology, and distinguished by his unfeigned piety. But his principal celebrity was acquired by his literary and scientific performances. In early life he contributed to the establishment of the academy of the "Atletoli," or the lovers of truth, and in the progress of his studies rendered it considerable service. His literary reputation attracted that notice to which the rank of his family also entailed. He was appointed his librarian; and he was promoted to the dignity of canon in the church of Santa Maria della Rotunda, of the Delegio, to that of St. Lawrence, in Damafo. He was also secretary to the congregation for the reform of the calendar, to which office he was nominated by pope Clement XI. The senate created him one of the nobility of Rome, and after his death the citizens of Verona placed his bust in their cathedral. He died of the dropsy, March 2, 1729, with a character distinguished for the benevolence and candour of his manners, as well as for his piety and universal learning. His letters are preserved in the possession of one of the foreign members of the academy of sciences at Paris. His first work was "An Universal History," on a new plan, serving to give pertinency to the chronological distribution. The first part of this work was published in 1697, under the title of "La Historia Universale" propta con monumenti et epitome con Simplici de gli Antichi." It extends, from the creation
creation of the world, to the destruction of the great Assyrian empire, and is held in high estimation for industry of research, and ingenuity of disquisition with regard to the genuine monuments of antiquity. The succeeding parts were never written. On occasion of the reform of the calendar, Bianchini wrote two learned and scientific treaties published in 1725, and entitled "De Calendario et Cyclo Cesariano ac de Canone Pachiani Sancti Hippolyti Martyris, Dissertationes duo." Of his astronomical skill and labour in tracing the meridian line, in the church of the Chartreux at Rome, he published an account in a dissertation "De nummino et gnomone Clementino." In 1727, he published "Camera ed Inserizioni Sepolcreti di Libert, Serviti Officidali della Caffa di Augllco, &c." on the occasion of the discovery of a subterranean sepulchral building, in 1726, on the Appian way. His observations on Venus were published in 1728, under the title of "Helenari et Phosphorl Nova Phenomena, five Observatione s circa Planctum Veneris." The results of his observations on the rotation of Venus, and the position of its axes, though very interesting to astronomers at the time of their publication, have not, however, been confirmed by those of a later date, made by Herchel and Schroeter, with instruments of much greater power than any which were known in his time, and inserted in the Philosophical Transactions. The cause of this difference has not yet been ascertained, and defers investigation. (See Venus.) Bianchini was employed for eight years in preparatory measures for tracing a meridian line through the whole extent of Italy, but his death prevented the commencement of this enterprise. His edition of "Anastasius's Lives of the Popes," in 4 vols. folio, with notes, dissertations, prefaces, &c. displays much genius and erudition; but it is said to abound with typographical errors. He left an unedited dissertation in Latin, on the three kinds of musical instruments of the ancients, which was published at Rome 1742, in 4to., under the following title: "Francisci Bianchini Veronensis utroque signaturae referendari, libri domi cuius, de tribus generibus instrumentorum musicorum vetere organiset dissertatius." In dividing ancient musical instruments into three classes, namely, wind instruments, stringed instruments, and instruments of percussion, the first class includes flutes, trumpets, horns, the syrinx, and hydraulic; the second, the cornuchoth, the lyra trichordus, tetrahordum, the seven-stringed lyre, the cithara, the psaltery, the harp, &c.; the third class comprises the tympanum, cymbalum, crotalam, sistrum, and the tinnitubulum. Of all these, the author has given descriptions and representations well engraved on plates. Fontenelle Elogie des Academicians. Nouv. Dict. Hist.

BIANDRATE, in Geography, a town of Piedmont, in the Novarese, 6 miles N.W. of Novara.

BIANDRONA, a town of Italy, in the duchy of Milan, 15 miles W.S.W. of Como.

BIANOR, in Entomology, a species of Papilio, nearly allied to P. Paris, and a native also of the East Indies. The wings are above and beneath of the same black colour, with five rows of spots on the posterior pair. Fabricius, &c.

It may be doubted whether there is a distinct species from Paris; perhaps only a sexual difference.

BIAR, a small town of Valencia, in Spain, seated on a river which runs into the Ebro, on the confines of New Castile. It is chiefly remarkable for its honey, which is distinguished by its whiteness and fertility, unadulterated by any change of weather; distant two leagues east of Villena.

BIARCHIUS, from bis, annus, annum), ditribn, andistics, tribus, an officer in the court of the emperors of Constantinople, intrusted with the care and inspection of the provisions of the folliery. The bisarchus was the same with what the Latins call pretextum annone. His function was called bisarchia; by the Latins pretextura rei civitatis. He belonged to the schola agitatarum in rebus. See Agntes.

BIARMIA, in Geography, a name given by the Scandinavian navigators, in the middle ages, to the whole country between the White Sea and the Ural. See Parnia.

BIARUM, in Botany, a name by which the people of Egypt at this time call the root of the nilusf or flix esculenta, growing on the Nile.

BIAS, or BMAS, in a general sense, denotes the tendency or propensity of a thing towards one side more than the other; particularly the deviation of a body, or a plane, from its rectilinear course, or its level. See Inclination. It signifies also the inclination of a person's mind to one thing more than to another. The word is French, bias, which signifies the same.

Bias of a bow, is a piece of lead put into one side, to load and make it incline towards that side.

Bias, in Biography, one of the seven wise men of Greece, was a native of Priene, in Ionia, and flourished in the reign of Alyattes II. king of Lydus, about 605, according to home, but according to Blair's tables, about 565 years before Christ. He was eminently distinguished not only by his wisdom, but by his generosity and public spirit, and for these qualities held in the highest estimation by his countrymen. Alyattes was obliged by a flaragement of his contrivance to raise the siege of his native town, when it was reduced to the utmost distress by famine. He first sent two fattened males into the enemy's camp; and the king, observing with admiration their good condition, sent deputies into the city under a pretence of offering terms of peace, but with a real intention of observing the state of the town and of the people. Bias, suspecting their design, ordered the granaries to be filled with large heaps of sand, and the heaps to be covered with corn; upon which, when the deputies returned, and reported the plenty of provision with which the city was furnished, the king no longer demurred, but concluded a treaty, and raised the siege. As an influence of his generosity, it is related of him, that when several young female captives were brought from Meneifie to Priene, he redeemed them, educated them as his own daughters, and then restored them with a dowry to their parents. As an evidence of the low estimation in which he held the gifts of fortune, compared with the endowments of the mind, it is said, that when Priene was once threatened with a siege, and the inhabitants were leaving it, loaded with their most valuable effects, Bias took no pains to preserve any part of his property, alleging as a reason of his conduct to one who expressed his surprise at it, "I carry all my treasures with me." The following maxims of wisdom are ascribed to him. "It is a proof of a weak and disorders mind to desire impossibilities." "The greatest infelicity is not to be able to endure misfortunes patiently." "Great minds alone can support a sudden reverse of fortune." "The most pleasant state is to be always gaming." "Be not unmindful of the mistakes of others." "If you are handsome, do handsome things; if deformed, supply the defects of nature by your virtues." "Be slow in undertakings, but resolute in executing." "Prate not a worthless is man for the sake of his wealth." "Whatever good you do, or do all the good you can, and ascribe the glory of it to the gods." "Lay in wisdom as the store for your journey from youth to old age, for it is the most certain provision." "Many men are dishonest; therefore love your friend with caution, for
BIBIEN, in Zoology, a name given by Ridinger, &c. to the beaver, barbarus. Linnaeus.

BIBER, Henry John Francis, in Biography, vice-chaplain to the archbishop of Salzburg, seems to have been the greatest performer on the violin of the 17th century. Baltzar from Linz, about the middle of that century, had so alarmed the Oxonians by his execution on the violin, that according to Ant. Wood, Dr. Wilson, the music professor, after hearing him, flopped down to examine his feet, whether they were not cloven; that is, ‘whether he was a devil, or not, because his performance was beyond the faculties of man.’ But if we may now judge of his performance by his compositions that are still extant, it was very inferior to that of Biber, who published in 1681, folios for a violin and base, the most difficult and the most fanciful of any music of the same period. One of the folios is written on three separate flares, as a score for two violins and a base; but the trebles are to be played in double flutes. Others are played in different tunings of fourths and fifths, as for a treble violin. A second work by this musician, intitled fiduciun, facro profanum, consists of twelve fantasias in four and five parts, to be played on three instruments; and a third, harmonia artistico-arioia, published at Nuremberg, consisting of pieces in seven parts, to be played on three instruments. In this last work he is styled Dijifer. In knowledge of the finger-board, double flutes, and use of the bow, as well as composition, he seems to have surpassed all preceding violinists.

BIBERACH, in Geography, an imperial city of Germany, in the circle of Swabia, situated in a valley, watered by the Ries, near the Danube. The magnificents and people are partly protestants and partly catholics; and the church, as well as the hospital, are common to both. The treaty of Westphalia requires that it should have as many catholics as Lutherans in the senate. It is governed, as to its offices, like the city of Augsburg. It has a large manufacture of fluylins. The number of houses is estimated at 900, of inhabitants at 6,600, and of burghers at 900. This city is very ancient, and was known in the year 751, under Pepin. By the plan of indemnities agreed upon by France and Russia, this imperial town was conceded to the margrave of Baden. N. lat. 48° 4'. E. long. 10° 27'.

BIBERSTEIN, a small town of Switzerland, in the canton of Bern, leaced on the north-welt side of the Aar. N. lat. 47° 17'. E. long. 7° 56'.—Ariu, a bailiwick, with a castle, in the circle of the Upper Rhine, and bishopric of Fulda. 8 miles east of Fulda.

BIBIENA, Bernardino Da, Cardinal, whose proper name was Doni, or Doria, was born of an obscure family at Bibiena, in the Cefantina, in 1470, and entered into the service of the family of Lorenzo di Medici. He attached himself to cardinal John, afterwards pope Leo X., whom he accompanied in his exile and served with affection and fidelity. At Rome he ingratiated himself with pope Julius II., by whom he was employed in some concerns of importance, and by whom his services were approved. On the death of Julius, he artfully perfused the cardinals, that his mather, though only 36 years of age, was not likely to live long, and by this artifice obtained his election. Leo was not inoffensible of his obligations, and made him his first treasurer, and in 1513, cardinal. In the direction of the works of the holy house of Loretto, in which he was employed, he encouraged men of literature, and engaged the best artists, particularly Raphael. Leo also deputed him as legate to the pontifical army against the duke of Urbino, then to the emperor Maximilian, and afterwards, in 1518, to Francis I.

he may hereafter become your enemy.” Bias is affected to have written more than 2000 verses concerning Ionia. His death was no less honourable than affecting; for he expired in the arms of a grandson, while he was playing a caufe for a friend. Dio. Laert. 1. i. 82. Val. Max. i. iii. c. 2. v. 2. Aul. Gell. l. v. c. 11. Cicer. de Amicit. c. 62. Plat. Conv. vii. Ariflot. Rhet. i. ii. e. 13. Stobæus Serm. 28. Brucker’s Phil. by Enfr. vol. i. p. 135.

Bias, in Entomology, a species of Papilio (Pleb. Rur.), that inhabits Cayenne. The wings are entire black, glistened with blue; beneath brown, with a white posterior margin. Fabricius.

BIAS, St. in Geography, a town of Italy, in the kingdom of Naples, and province of Principato Cirta, 15 miles W. N. W. of Piletira.

BIATHANATI, Sabella, from βιο, violence, and Σάφειρ, deaths; the same with fiduces by Lipsius.

BIBAN, in Geography, a town of Egypt, in Bahira, the residence of a kiafikfat. Once a week, on Monday, a fair for camels and other cattle is held in the fields adjoining to this place.

BIBBONA, a town of Italy, in the duchy of Tuscany, 50 miles north of Arezzo.

BIBBS, BIBS, or BRACKETS, in Naval Architecture, are made of elm plank, and bolted to the hounds of masts, as supporters to the trefle trees. They are from three to five inches thick, and nine elevenths of the hounds in length, and in breadth fix fiftieths their length. The after edge is first lined straight, and the upper part fquare from that, and the fore part tapered by a moulding to four or six inches of breadth at the lower ends. The after edge is fayed on the checks, and the upper part against the under side of the trefle trees on the fore fide of the mast; viz. In the middle of the after edge, fet up one inch and a half, and line straight from that to nothing at the lower end, which makes a butt in the middle; then place the bibbs on the mast, their thicknes within the fides of the checks, and their upper parts to the outside of the trefle trees; then let one inch and a half be rased by the lower edge of the bibbs upon the checks, and the wood taken out to that depth, and the thicknes of the bibbs, that they may bed firn therein; they are then bolted edgewayes through the checks with four bolts driven from the fore fide and clenched on a ring on the aft-fide. The bolts are to be in diameter from one inch to seven eighths, or three quarters in small trip’s masts, and only three in number. The lower end of the bibb is rounded off to the surface of the check, and the edges chamfered.

BIBEN, in Geography, a town of Peria, in the Irak Agem, 140 miles eatt of Lipahan.

Biber, otherwise called Pitsheim, and in Latin Pedena, or Perina, a town of Carniola, leaced in a very fertile spot, on a high mountain; and the fee of a bishop, to whose jurisdiction belong two towns and eleven villages, in which are fourteen parishes, tillfargan to the prelate of Gorz.

Biber, a town or village of Germany, in the circle of the lower Rhine, the electorate of Mentz, and prefecture of Steinheim, 5 miles E. S. E. of Frankfort on the Main. This is one of eleven villages which are polluted in a common of a wood named the “Biber Mark.” At Biber, all things relating to it are managed by the sheriffs of the Mark: and before the village, under a great lime-tree, lies the sheriff’s bench, where the Mark court is fenced in, and tranfegriers are openly cited and punished.
BIB

BIBILE, a town of Egypt, two miles south of Feltum.

BIBLIO, in Etymology, one of the Fabrician genera of ANGILOTTA, and which in the Linnaean system forms a section of the Musca genus. Fabricius defines the generic character of Biblios from theucker, feeders, and antennae. Theucker consists of three bristles and a tuft of a single valve; feeders very short; antennae connected at the base, and pointed at the tip. Ent. Syst. See Musca.

BIBLIOGRAPHIE. See ADDUCTOR OCELLI.

BIBLE, a book by way of eminence to be called, containing the Scriptures, i.e. the writings of the Old and New Testament; or the whole collection of those which are received among Christians as of divine authority.

The word Bible comes from the Greek Βιβλιον, or βιβλα, used to denote any book; but, by way of eminence, applied to the book of Scripture, which is "the book," or "book of books," as being superior in excellence to all other books.

From £ to again comes from βιβλα, the Egyptian reed, from which the ancient paper was procured. See Bibles.

The word Bible seems to be used in the sense now specified by Chrysolofum (In Col. H. 9. tom. xi. p. 59.)...I therefore exhort all of you to procure to yourselves Bibles.

BIBLIA, a celebrated painter and architect, was born at Bologna in 1647; and losing his father when very young, was placed under the direction of Carlo Longhiera, who, by his talents for architecture, obtained for him the instruction of Paradisi, Albionbomini, and Alberti, the best masters of that period for prescriptive and architectural ideas. In consequence of the recommendation of Longhiera, he was appointed by the prince of Parmo, who employed him in executing a variety of decorations, and settled upon him as an annual pension. For the dukes of Parmo, he painted the scenes for Hercule, tyrant of Syracuse, in 1684; for Theophilus in love with Alexander, 1693; for Domestic: Scenery, 1694; for Franchises, 1700; and for R. Scenna, in 1711. From Parmo he went to Milan, where, in 1709, he painted the scenes for L'incoronazione, and there went to Venice, and was appointed painter and architect to the emperor Charles VI., by whom he was highly honored. He was the master of those wonderful and magnificent scenes which filled the curiosities of the city, and filled a book of prisoners for the imperial court. He had left for several places,

The book of Bibles, as exhibited at La Favourite, when the husband of Francis of, and of the Stuart and Ardour, celebrated at La Favourite, was

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The first canon or catalogue of the sacred books was made by the Jews; but the original author of it is not exactly ascertained. It is certain, however, that the five books of Moses, called the Pentateuch, were collected into one body within a short time after his death; since Deuteronomy, which is, as it were, the abridgment and recapitulation of the other four, was laid in the tabernacle near the ark, according to the order which he gave to the Levites (ch. xxxi. v. 24.) Hence it appears that the first canon of the sacred writings consisted only of the five books of Moses; for a further account of which, see Penta- 

t euch. It does not appear that any other books were added to these, till the division of the ten tribes, as the Sma- 

ritans acknowledged no others. However, after the time of Moses, several prophets, and other writers, divinely in- 
fpired, composed either the history of their own times, or prophetic books and divine writings, or psalms appr pri- 
ated to the praise of God. But these books do not seem to have been collected into one body, or comprised under one and the same canon, before the Babylonish captivity. This 

was the case in their order rather from the prophet to the prophet, which time the Jews had a certain number of books digested into a canon, which comprehended none of those books that were written since the time of Nehemiah. The book of 

Ezechiel affords sufficient evidence, that the canon of the sacred books was completed when that tract was composed; for that author, in chap. xlix. having mentioned among the famous men and famed writers, Isaiah, Jeremiah, Ezekiel, adds the twelve minor prophets, who follow those three in the Jewish canon; and from this circumstance we may in- 
fer, that the prophecies of these twelve were already collect- ed and digested into one body. It is farther evident, that in 

the time of our Saviour the canon of the holy Scriptures was drawn up, since he cites the Law of Moses, the Pro- 

phets, and the Psalms, which are the three kinds of books of which that canon is composed, and which he often styles “the Scripture,” or “the Holy Scripture.” Matt. xxvi. 

42. xxii. 29. xxvi. 54. John, v. 39. This flew that they were distinguished from others, and formed a separate body. 

The person who compiled this canon is generally allowed to be Ezra. According to the invariable tradition of Jews and 

Christians, the honour is ascribed to him of having collected 
together and perfected a complete edition of the Holy Scrip- 
tures. The original of the Pentateuch had been carefully pre- 
erved in the side of the ark, and had been probably intro- 
duced with the ark into the temple at Jerusalem. After 

having been concealed in the dangerous days of the idolatrous 
kings of Judah, and particularly in the impious reigns of 

Manasseh and Amon, it was found in the days of Josiah, the 

suceeding prince, by Hilkiah the priest, in the temple. 
Prideaux lays, that during the preceding reigns, the book of 

the Law was so destroyed and lost, that, besides this copy of it, there was then no other to be obtained. To this pur- 
pose he adds, that the surplice expressed by Hilkiah, on the 
discovery of it, and the grief expressed by Josiah when he 
heard it read, plainly shew that neither of them had seen it 
before. Upon this, the pious king ordered copies to be 
written out from this original, and to be dispersed among the 
people. 2 Kings, xxiii. 8—13. 2 Chron. xxxiv. On the 
other hand, Dr. Kennicott supposes, that long before this 
time, there were several copies of the Law in Israel, during 
the separation of the ten tribes, and that there were some 
copies of it likewise among the tribes of Judah and Benjamin, 
particularly in the hands of the prophets, priests, and Le- 
vites, and that by the instruction and authority of these M.S., the various services in the temple were regulated, 
during the reigns of the good kings of Judah. He adds, 

that the surplice expressed by Josiah and the people, at his 
reading the copy found by Hilkiah, may be accounted for 
by admiring to the history of the preceding reigns, and by 
recollecting what a very idolatrous king Manasseh had been 
for 55 years, and that he wanted neither power nor inclina- 
tion to destroy the copies of the Law, if they had not been 
secreted by the servants of God. The Law, after being so 
long concealed, would be unknown almost to all the Jews; 
and thus the solemn reading of it by Josiah would awaken 
his own and the people's earnest attention; more especially, 
as the copy produced was probably the original written by 
Moses. From this time copies of the Law were exten- 
vively multiplied among the people; and though within a 
few years, the autograph, or original copy of the Law, was 
burnt with the city and temple by the Babylonians, yet 
many copies of the Law and the Prophets, and of all the 
other sacred writings, were circulated in the hands of private 
persons, who carried them with them into their captivity. 
It is certain that Daniel had a copy of the Holy Scriptures 
with him at Babylon; for he quotes the Law, and mentions 
the prophecies of Jeremiah, in the ninth chapter of 
Daniel, xxv. It appears also, from the fifth chapter of Ezra, and from the 

ninth chapter of Nehemiah, that copies of the Law were 
difpered among the people. It is unnecessary, therefore, to 
turnpoe, with some of the ancient fathers, such as Tertullian, 
Clemens Alexandrinus, Baill, &c. that Ezra restored the 
Scriptures by a divine revelation, after they had been lost 
and destroyed in the Babylonish captivity. For this opi- 

nion they had no other authority than the fabulous relation 
which occurs in the 14th chapter of the second apocry- 
phal book of Enoch; a book too absurd for the Roman-

ists themselves to admit into their canon. The whole 

which Ezra did may be comprised in the following particular. 
He collected as many copies of the sacred writings as he 
could find, and compared them together, and out of them 
all, formed one complete copy, adjusted the various readings, 
corrected the errors of transcribers, and as some say, annexed the “Keri cheitis,” which are found in the margins of the 
ancient MSS. He likewise made additions in several parts of 
the different books which appeared to be necessary for the 
illustration, correction, and completion of them. To 

to this class of additions, we may refer the last chapter of 
Deuteronomy, which, as it gives an account of the death 
and burial of Moses, and of the succession of Josiah after him, 
could not have been written by Moses himself. Under the 

same head have also been included many other interpreta-
tions in the Bible, which create difficulties that can never be 
solved without allowing them; as in Gen. xii. 6. xxii. 14. 
xxvi. 3. Exod. xvi. 35. Deut. ii. 12. iii. 11. 14. 
Prov. xxv. 1. The interpolations in these passages are ascribed by 
Prideaux to Ezra; and others which were afterwards added 
he attributes to Simon the Jull. Ezra also changed the old 
names of several places that were become obsolete, putting 
instead of them the new names by which they were at that 
time called; influences of which occur in Gen. xiv. 4, where 
Dan is substituted for Laish, and in several places in Genesis, 
and also in Numbers, where Hebron is put for Kirjath Arba, 
&c. He likewise wrote out the whole in the Chaldee charac-
ter, changing for it the old Hebrew character, which hath 
from that time been retained only by the Samaritans, and 
among whom it is preferred even to this day. In the church 
of Dominic, in Bononia, there is said to be a copy of the He-
brew Scriptures, preferred with great care, which they pre-
tend to be the original copy written by Ezra himself, and 
for which great pains have been occasionally borrowed by the 
Bonontians upon the pledge of it, and which have again 
been paid for its redemption. This copy is written in a
The Books of the Old Testament were compiled in the time of Ezra (Ezr. viii. 2). The Books of the New Testament were compiled in the time of St. John the Evangelist (Luke x. 42). The Books of the Apocrypha were compiled in the time of St. John Chrysostom (Chrys. hom. x. 1). The Books of the Pseudepigrapha were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Polyc. epigr. iv. 1). The Books of the Gospels were compiled in the time of St. Irenaeus (Iren. ad Her. iii. 6). The Books of the Acts of the Apostles were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Eph. epigr. iv. 1). The Books of the Epistles were compiled in the time of St. Irenaeus (Iren. ad Philid. epigr. i. 7). The Books of the Apocalypse were compiled in the time of St. John Chrysostom (Chrys. hom. x. 1). The Books of the Martyrdoms were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Polyc. epigr. iv. 1). The Books of the Fathers were compiled in the time of St. Irenaeus (Iren. ad Her. iii. 6). The Books of the Theology were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Eph. epigr. iv. 1). The Books of the History were compiled in the time of St. Irenaeus (Iren. ad Philid. epigr. i. 7). The Books of the Geography were compiled in the time of St. John Chrysostom (Chrys. hom. x. 1). The Books of the Topography were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Polyc. epigr. iv. 1). The Books of the Chronology were compiled in the time of St. Irenaeus (Iren. ad Philid. epigr. i. 7). The Books of the Pseudepigrapha were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Polyc. epigr. iv. 1). The Books of the Apocrypha were compiled in the time of St. John Chrysostom (Chrys. hom. x. 1). The Books of the Gospels were compiled in the time of St. Irenaeus (Iren. ad Her. iii. 6). The Books of the Acts of the Apostles were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Eph. epigr. iv. 1). The Books of the Epistles were compiled in the time of St. Irenaeus (Iren. ad Philid. epigr. i. 7). The Books of the Apocalypse were compiled in the time of St. John Chrysostom (Chrys. hom. x. 1). The Books of the Martyrdoms were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Polyc. epigr. iv. 1). The Books of the Fathers were compiled in the time of St. Irenaeus (Iren. ad Her. iii. 6). The Books of the History were compiled in the time of St. Irenaeus (Iren. ad Philid. epigr. i. 7). The Books of the Geography were compiled in the time of St. John Chrysostom (Chrys. hom. x. 1). The Books of the Topography were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Polyc. epigr. iv. 1). The Books of the Chronology were compiled in the time of St. Ignatius of Antioch (Ignat. mag. ad Polyc. epigr. iv. 1).
the Prophets, the reading of which they ever after continued. Thus, when the reading of the Law was restored by the Maccabees, the fection which was read every sabbath out of the Law served for their first lesson, and the fection out of the Prophets for their second lesson; and this practice was continued in the time of the apocryphes. Acts, xiii. 15. xiii. 27. These fections were divided into verses, called by the Jews "Pefukim," and they are marked out in the Hebrew Bible by two great points at the end of them, called from hence "Soph-Pafuk," i.e. the end of the verse. This di\inion, if not made by Ezra, is very ancient; for when the Chaldee came into use in the room of the Hebrew language, after the return of the Jews from their captivity in Babylon, the Law was read to the people first in the Hebrew language, and then rendered by an interpreter into the Chaldee language; and this was done period by period. To distinguish these periods was an object of importance; and hence arose the division into verses, which was first applied to the Law, and afterwards to the Prophets and Hagiographa. The manner by which these divisions, or verses, are now distinguished is by the "Soph-Pafuk?" but it is not certain that this was the ancient method. Puddeus apprehends, that the Pefukim, or verses of the Hebrew Bibles, were anciently di\ivided in the same manner as the "Stichii" afterwards were in the Greek Bibles. The manner of their writing thefe flich at first was to allow a line to every flichus, and there to end the writing, where they ended the flichus, leaving the ref of the line a void break. But this mode occasioning a waste of parchment, on which their books were written, and making their bulk too heavy; in order to avoid thefe inconveniences, they afterwards put a point at the end of every flichus, and continued the writing without leaving any blank. In the Hebrew Bibles they adopted the fame mode, and put the two points, called "Soph-Pafuk," at the place where one verse ended, and continued the writing of the next verse in the fame line, without leaving any void space. The division of the holy Scriptures into chapters is of a much later date. The Psalms, indeed, appear to have been always divided as they are at present. Acts, xiii. 33. But as to the reft of the Bible, the prefent division into chapters was unknown to the ancients. See Chapter and Concordance.

Besides those books which were received into the canons of the books of the Old Testament, and those that have been deemed apocryphal, there are feveral others which are cited in the Old, and also in the New Testament, which seem either to have been lo\ved, or excluded by Ezra from his canon. Of fuch books are the books "of the wars of the Lord," cited Numb. xxi. 4. but it does not appear that in this place any book is mentioned, "of the Covenant," of which it is faid mention is made Exod. xxiv. 7, but evidently referring to the laws received by Moses from the hand of God, related in the preceding chapters; the "book of the Lord," mentioned H. xxxiv. 16. which does not feem to be any particular book; the "book of Jasher, or the upright," cited in Jotha, x. 13. and 2 Sam. 1. 18. supposed by fome to be an historical book, but more probably containing of hymns and songs; and the "books of Nathan (1 Chron. xxix. 20. 2 Chron. ix. 29.) of Gad, (1 Chron. xxix. 29.) of Shemaiah, (2 Chron. xii. 15.) of Ithda, (2 Chron. xix. 15. xii. 22.) of Abijah, (2 Chron. ix. 29.) and of Jehu, (2 Chron. xx. 34.), which were memoirs compiled by thofe prophets, or rather prophecies, which contained a part of the history. The fame may be faid of the book of the "Journals or Chronicles" of the kings of Judah or of Israel; which are different from the Paralipomena, or Chronicles; the book of "Samuel the Seer," cited in the last chapter of the firft book of Chronicles; the diffcours of Hoftiah, cited 2 Chron. xxxiii. 18. 19. the "Acts of Uzziah," mentioned 2 Chron. xxvi. 22. the "three thousand and Proverbs, written by Solomon," (see 1 Kings, iv. 32.); a thousand and five Songs, &c. composed by the fame author, and mentioned in the fame place. Jeremiah speaks of a volume of prophecies which he had dictated to Baruch, suppo\sed by fome to be the Lamentations. (See Baruch.)

Besides these books that are lo\ved, there are others, not included in the canon of the Old Testament, which are till extant; fuch as the "Prayer of king Manafleth, when captive at Babylon," cited 2 Chron. ch. xxxiii. "the third and fourth books of Efras," "the third and fourth books of the Maccabees," "the genealogy of Job," and "a speech of Job's wife," annexed to the Greek edition of the book of Job; "a Psalm," added to the Greek edition of the Psalms; the book of "Ezechias," not entire, cited by feveral of the fathers, and regarded by them as apocryphal, and referred to by Jude, v. 14. the book of the "Assumption of Moses," and his "Testament," placed by St. Athanasius among apocryphal books; the "Assumption, Apocalypfe, or Secrets of Elijah," cited by Origen; and a number of others forged by the Jews, and fathered on the Patriarchs. See New Testament.

It may not be improper to refer, in one view, the books of the Old and New Testaments to their proper authors. We may suppose them, without ascribing to the region of conjecture, and tracing the origin of any books, or parts of books of the Bible to patriarchal times, that the Pentateuch conftits of the writings of Moses, put together, perhaps, by Samuel, with a few additions; that the books of Joshua and Judges were, in like manner, collected by him; and the book of Ruth, with the first part of the firft book of Samuel, written by him; that the latter part of the firft book of Samuel, and the second book, were written by the prophets who succeeded Samuel, viz. Nathan and Gad; that the books of Kings and Chronicles are extracts from the records of the succeeding prophets, concerning their own times, and from the public genealogical tables, made by Ezra; that the books of Ezra and Nehemiah are collections of like records, some written by Ezra and Nehemiah, and some by their predecessors; that the book of Ezechias was written by some eminent Jew, in or near the times of the transactions there recorded, perhaps Mordecai; the book of Job by Mofes, or a Jew of an uncertain period; the Psalms by David, and other pious owners; the books of Proverbs and Canticles by Solomon; the book of Ecclefeiastes by Solomon, or perhaps by a Jew of later times, speaking in his person, but not with an intention to make him pafs for the author; the Prophecies by the prophets, whose names they bear; and the books of the New Testament by the persons to whom they are ufually a\cribed. See New Testament. There are many internal evidences, and in the eafe of the New Testament, many external evidences also, by which these books may be known to belong to the authors here named. Or, if there be any doubts, they are merely of a critical nature, and do not at all affect the genuinenefs of the books, or not alter, at leaft materially, the arguments that may be adduced in favour of their authenticity and authority. It is readily allowed, that objections have been made to the alleged authors of several of these books. Abenazer, followed by Hobbes, Pereira, Spinosa, and some others, deny the firft five books to have been written by Mofes. F. Simou, in particular, afferts, that the books, as we now have them, are not the original\ls written by the inspired penmen, but abridgments of them, made in after\times by a kind of college, or order of public authours, or scriber,
B I B L E.

scriber, appointed for that purpose. See Pentateuch, and each of the books of the Bible, under its proper title. See also New Testament.

The original language of the Old Testament was, without doubt, the old Hebrew, at least the greatest part of it; for all the books do not appear to have been written in the same language. Some chapters of Ezra and Daniel, (see Ezra and Daniel,) are judged to have been composed in Chaldee; and it has been supposed, that other chapters of this latter writer, and also the apocryphal books of Maccabees, &c. were written in Greek. Tobit and Ecclesiasticus, either in Greek or Syriac. As for the New Testament, it was written in Greek, except the Gospel of St. Matthew, which is thought by some to have been composed in Hebrew. Some few have thought that the Gospel of St. Mark was written in Latin, and also the epistle to the Hebrews. See the Title of each Book, and Testament.

With regard to the style of the several writers of the Old and New Testament, there is a very considerable diversity. The style of Paul may be easily distinguished by its peculiarity from that of any other writer. A discriminating reader will not easily confound the style of Luke with that of either of the evangelists, who preceded him, Matthew, or Mark, nor would he be in any danger of mistaking the apostle John's diction for that of any other penman of the New Testament. The same difference of style will be discovered by one who is but moderately conversant with the Hebrew, in the writers of the Old Testament. In this we have a greater variety than in the New. Some of the books are written in prose, and some in verse; and in each the differences between one book and another are considerable. In the book of Job, for instance, the character of the style is remarkably peculiar. What can be more dissimilar in this respect, than both are excellent in their kind, than the towering flights of the sublime, and the plaintive strains of the pathetic Jeremiah? In several books of Scripture we can specify the concise style and the copious, the elevated and the simple, the apophasise and the diffusus. This diversity in the diction of the several penmen is perfectly reconcileable with the idea of their inspiration; and in speaking on this subject, we should duly attend to the difference between the expression and the sentiment, and avoid confounding the two, as if they were the same, whereas they are widely different. The truths implied in the sentiments are essential, immutable, and have intrinsic value; the words which compose the expression are in their nature circumstantial, changeable, and have no other value than what they derive from the arbitrary conventions of men. That the Holy Spirit would guide the minds of the sacred penmen in such a manner as to prevent their adopting terms inimicable to his design, or which might obstruct his purposes; and that in other respects he would accommodate himself to their manner and diction, is both reasonable in itself, and required for the manner of expressing themselves, which have the like characteristic differences of style, which we find in other compositions. Can it be accounted more strange that the Holy Spirit should, by the prophet Amos, address us in the style of a shepherd, and by David, in that of a warrior, that by the one he should speak to us in Hebrew, and by the other in Chaldee? It is as reasonable to think that the Spirit of God would accommodate himself to the peculiarity and diction, to the tenor of voice and pronunciation of those whom he was pleased to enlighten; for it cannot be denied, that the pronunciation of one person in uttering a passage, might be more articulate, more audible, and more affecting than that of another; and in like manner, as one style has more harmony, elocution, and perspicuity than another. Caius thinks justly, (Def. cont. Beza.)

"Res dictat Spiritus, verba quidem et lingiam loquenti aut scribere liberam permittit; i.e. the Spirit dictates the things, leaving the words or language free to the speaker or writer. Jerom also observed a thousand years before, (Comment. in Epist. ad Gal. cap. 1.) "Nee putamus in verbis Scripturarum evangelium esse, fed in fendo;" i.e. let us not imagine that the Gospel conflicts in the words of Scripture, but in the sense. To the same purpose is the observation of the ingenious and learned bishop Lowth, De Saera Poeh, H. B. Pref. xvi.) "Hoc ita facens variabilis studia, ut nihil derogetum Divini Spiritus usitatum, et hisue interea sum pro-prise ejusque Scriptus,itatione naturae atque ingenio concedamus: nec ex eo nonnulla divina in concitator variis animis, ut praecario obvius humiles indoles; attestantur et exigui, non exiguuntur aut occultantur naturae praecario faciuntis; et quamquam Mosis, Davidis, et Iaiae, scripta eorum praecario quidam tam exsauum tamque elocuto, ut plane videantur divinissima edita, nihil tamen minus in us Molon, Dauidem, Hianam, spectaculo aemulatissimam; i.e. we shall dart nothing from the dignity of that inspiration, which proceeds from higher causes, while we allow to the genius of each writer his own peculiar excellence and accompaniments. The Divine Spirit by no means takes such an entire possession of the mind of the prophet as to subdue or extinguish the character and genius of the man; the natural powers of the mind are in general elevated and refined; they are neither eradicated, nor totally obscured; and though the writings of Moses, of David, and of Isaiah, always bear the marks of a divine and celestial impulse, we may neverthelesse plainly discover in them the particular characters of their respective authors. See Inspiration.

It must be allowed, that many circumstances do not render the style both of the New Testament and of the Old; of the historical books, as well as of the prophetical and argumentative, generally obscure, and often ambiguous; although we ought not to admit the exaggerated representation of father Simon, (Hist. Crit. des V. T. liv. iii. c. 2.) with regard to the greater part of the Hebrew words, which, he says, are equivocal, and of course their signification altogether uncertain. The origin of this kind of statement must be sought in the author's attachment to tradition, rather than to that kind of scepticism with which he is charmed by Bezaet, bishop of Meaux, and which tended to undermine Christianity itself. To any person who duly reflects, this father's representation must appear to be unfounded, or beyond all bounds hyperbolical. It is not just in its reference to the prophetical writings; and as to the historical books, they are, in general, remarkable for perspicuity. The fault quality by which the facred history is distinguished is simplicity, which arises from this property of the Hebrew language, the verbs of which have not, like Greek and Latin, a variety of moods and tenses, nor do they abound, like the modern languages, in auxiliaries and conjunctions. This quality very much conduces to the perspicuity of its style. In this simplicity we have an example of the first paragraph of Genesis, consisting of five, not long, verses, and containing not fewer than eleven sentences, which are figurally simple; the substantives not being attended by adjectives, nor the verbs by adverbs, without synonyms, or superlatives, or any effort towards expressing things in a bold, emphatical, or uncommon manner. In the Pentateuch, there is also a simplicity of sentiment, arising from the very nature of the early and uncultivated state of society, about which its books are conversant, and this renders the narrative, in general, extremely clear and engaging. Besides the simplicity of structure, and the simplicity of sentiment, there is another species of simplicity, for which Scripture history is more remarkable than any other.
other compositions of any language. This may be denominated simplicity of design. The subject of the narrative often engrosses the attention of the writer, that he disappears, as it were, from the view of the reader. He introduces nothing as from himself; no opinions of his own, no remarks, conjectures, doubts, or inferences; no reasoning about the cause or the effects of what is related. He never interrupts his reader with the display, either of his talents or his passions: he makes no digressions; he draws no characters: he supplies us merely with naked facts, from which we are left to collect the character. We observe no attempt to shine by means of the expression, composition, or sentiments. Plainness of language is always preferred, because it is the most natural, the most obvious, and the best adapted to all capacities. In this last fort of singularity, for which Xenophon among the Greeks, and Cæsar among the Latins, have been recommended, our Lord's biographers particularly excelled. With respect to the first species of simplicity, or that of nature, the difference of the genius of the Greek language from that of the Hebrew must, without doubt, occasion some difference in the manner of Matthew, Mark, Luke, and John, from that of Moses: but the identity of idiom still occasions a strong resemblance between them. If genius, therefore, may be justly said to poise the first rank for simplicity of composition in the sentiments, the Gospels are certainly entitled to the second: and John and Matthew have it in a higher degree than Mark and Luke. As to the second species, or simplicity of sentiment, the change of times, which is very great, as well as the difference of subjects, would necessarily confer the first degree of it upon the former. But in simplicity of object or design, the evangelists, of all writers, sacred and profane, appear the foremost. Their manner is indeed, in some respects, peculiar and unrivalled. We direct our attention from the historical, or narrative parts of the Bible, to the writings of the poets and prophets, we shall discover the animated, elegant, and sublime intermixed, as the subjects afford, and the occasions require, with the simple and perspicuous. But for other particulars, in reference to this subject, see Style and Testament. See also the titles of the several books of the Bible, for the distinguishing character of their writers.

Having considered the appellations by which the Bible is distinguished, the books of which it consists, the time, and manner in which they were collected, their respective authors, and the language and style in which they were written, it may not be improper to subjoin a few observations on the genuineness of the authenticitv of the Scriptures, on their high original and divine authority, and on their great importance and utility.

It should here be considered, that the genuineness of the Scriptures proves the truth of the principal facts contained in them; to which purpose we may observe, that it is very rare to meet with any genuine writings of the historical kind, in which the principal facts are not true, unless it be in instances where both the motives which engaged the author to falsify, and the circumstances which gave some plausibility to the fiction, are apparent; neither of which can be alleged in the present case with any colour of reason. As this is rare in general, it is more rare, when the writer treats of things that happened in his own time, and under his own cognizance and direction, and communicates his history to persons under the same circumstances; all which may be said of the writers of the Scripture history. Besides, the great importance of the facts mentioned in the Scriptures makes it more improbable, that the several authors should either have attempted to falsify, or have succeeded in such an attempt. This is an argument for the truth of the facts, which proves the genuineness of the books at the same time. However, the truth of the facts is inferred more directly from their importance, if the genuineness of the Scriptures be previously allowed. The same observation may be applied to the great number of particular circumstances of time, place, persons, &c. mentioned in the Scriptures, and to the harmony of the books with themselves, and with each other. These are arguments both for the genuineness of the books, and truth of the facts distinctly considered, and also arguments for deducing the truth from the genuineness. Moreover, if the books of the Old and New Testaments were written by the persons to whom they have been ascribed, i. e. if they be genuine, the moral characters of these writers afford the strongest assurance, that the facts ascribed by them are true. The sufferings which several of the writers underwent both in life and in death, in attestation of the facts delivered by them, furnish a particular argument in favour of these facts. Again, the arguments here alleged for proving the truth of the Scripture history from the genuineness of the books, are as conclusive in respect of the miraculous facts, as of the common ones. It may also be observed, that if we allow the genuineness of the books to be a sufficient evidence of the common facts which they record, the miraculous facts must also be allowed, from their close connection with the others. It is necessary to admit both or neither. We cannot conceive, that Moses should have delivered the Thracites from their slavery in Egypt, or conducted them through the wilderness for forty years, at all, in such manner as the common history represents, unless we suppose the miraculous facts intermixed with it to be true also. In like manner, the fame of Chrift's miracles, the multitudes which followed him, the adherence of his disciples, the jealousy and hatred of the chief priests, scribes and pharisees, with many other facts of a common nature, are impossible to be accounted for, unless we allow, that he did really work miracles. And the same observations hold, in general, of the other parts of the Scripture history. We might urge a particular argument in favour of the miraculous part of the Scripture history, that may be deduced from the reluctance of mankind to receive miraculous facts; which would put the writers and readers very much upon their guard, and would operate as a strong check upon the publication of a miraculous history at or near the time when the miracles were said to be performed; and thus would serve as a strong confirmation of such an history, if its genuineness be previously granted. The converse of the proposition, now stated and explained, is also true: i. e. if the principal facts mentioned in the Scriptures be true, they must be genuine writings. In connection with the preceding proposition we may observe, that the genuineness of the Scriptures proves their divine authority. Porphry in effect acknowledges the truth of this proposition, in its reference to the book of Daniel, by being unable to devise a method of invalidating its divine authority implied in the accomplishment of the prophecies which it contains, without affecting, that they were written after the event, or that they were forgeries. Many of the other books of the O. and N. Testaments have unquestionable evidences of the divine foreknowledge, if they be allowed genuine: such are thofe supplied by Moses to the fHOW we delivered; Joshua's concerning Cyrus; Jeremiah's concerning the duration of the Babylonish captivity; Chrift's concerning the destruction of Jerusalem, and the captivity, which was to follow; St. John's concerning the great corruption of the Chriftian church; and Daniel's concerning the fourth empire in its declension; which left was extant in the time of Porphyry, at least, that is, before the events which
it represents. The truth of the proposition might also be argued from the possibility and excellence of the doctrines contained in the Scriptures; in no respect fusing the supposed authors, or the ages in which they lived, their education or occupation; so that, if they were the real authors, we are under the necessity of admitting the divine authority. The converse of this proposition is, that the divine authority of the Scriptures inheres in their genuineness, will be readily and universally accepted, and. And there are several evidences for the Divine authority of the Scriptures, which are direct and immediate, and prior to the consideration both of their genuineness, and of the truth of the facts contained in them. Moreover, the truth of the principal facts contained in the Scriptures prove their divine authority. Such is the frame of the human mind, that the Scripture history, allowed to be true, must convince us that Christ, the prophets, and the apostles, were endowed with a power greater than human, and acted by the authority of a Being of the highest wisdom and goodness, but if natural religion be previously established, the truth of the principal facts of the Scriptures prove their divine authority, in a more easy and more convincing manner; for the knowledge and power manifested by Christ, the prophet, and apostles, and also their moral characters, shew them to be in an eminent manner the children, servants, and messengers of him, who is previously acknowledged to be infinite in power, wisdom, and goodness; and they actually lay claim to a divine mission, which claim cannot be thought a lie, if it were their credentials: or, in other words, the truth of the principal facts mentioned in the Scriptures proves the divine mission of Christ, the prophets, and apostles, that is, the divine authority of the Scriptures.

By such mode of arguing it is found, that the genuine facts of the Scripture, the truth of the principal facts contained in them, and their divine authority, appear to be so connected with each other, that any one being established upon independent premises, the other two may be inferred from it. On the subject of the inspiration of the Scriptures, see Inspiration.

Another argument of proof of the genuineness of the books of the Old and New Testaments, and of the truth of the principal facts contained in them, may be deduced from the manner in which they have been transmitted down from age to age to another; especially that, in which all other genuine books have been preserved, without any mixture of spurious

As a sequel of the Greek and Roman writers were accustomed to take this statement to be true, transmitted it to them by their authors in a continued succession, from the times when the inspiration of authors lived, to have the books of the Old Testament, by the Jewish nation, and title of the New by the Christians; and it a authentic evidence in the full sense, that the genuine Christians were not a distinct nation, but a very mixture of people, throughout the whole nation, and the Roman empire, and even extending itself beyond the bounds of that empire. As the Greeks and Romans always believed the principal facts of the historical books, so the Jews and Christians, and hence we have the evidence of all ages of the permanence of the text of any part of the scripture from, what can be considered as the modified state of many parts of the Old Testament, without being bound for the Jewish and Christian. Now, a well-learned performer at the titles of the Hebrew books, as the Jews, and Christians, and hence we have the evidence of all ages of the permanence of the text of any part of the scripture from the Greek and Roman ages, as we recognize those to the modified state of many parts of the Old Testament, without being bound for the Jewish and Christian.

New, with it a liberal performer at the books of the Hebrew, and the Greek and Roman books, philosophers, etc., to be given, and the principal fact preserved or abdead to them to take time, and that one chief evidence of the great truth, the history of the times, not to be read, they neglect, therefore, to pay the same regard to the books of the Old and New Testaments, since there are the same or greater reasons for it. Besides, these traditional evidences are sufficient, and we thus obtain a real argument, as well as one "ad hominem," for receiving books this handed down to us. For it is not conceivable, that whole nations should either be imposed upon themselves, or concur to deceive others, by forgeries of books or of facts. These books and facts must, therefore, in general, be genuine and true; and it is a strong additional evidence of this, that all nations must be jealous of forgeries for the same reasons that we are. On the conclusiveness of this argument, as it relates to miracles; see MIRACLES.

We may proceed to observe further, that the great importance of the histories, precepts, promises, threatenings, and prophecies contained in the Scriptures, are evidences both of their genuineness, and of the truth of the principal facts mentioned in them. The history of the creation, fall, deluge, longevity of the patriarchs, dispersion of mankind, calling of Abraham, descent of Jacob with his family into Egypt, and the precepts of abstinence from blood, and of circumcision, were of such concern, either to mankind in general, or to the Israelites in particular, and some of them of so extraordinary a nature, as that it could not be a matter of indifference to the people amongst whom the account given of them in Genesis was first published, whether they received them or not. On the supposition that this account was first published amongst the Israelites by Moses, and then continued by clear, universal, uninterrupted tradition, it will be easy to conceive, how it should be handed down from age to age among the Jews, and received by them as indisputable. But supposing the account to be false, or that there were no such vestiges and evidences of these histories and precepts, it will be difficult to conceive, how this could have happened, let the time of publication be what it may. If early, the people would reject at once the account for want of a clear tradition; if late, it would be natural to enquire how the author was informed of things never known before to others. If the account was delivered, as having been communicated to Moses by divine revelation, which is not very consistent with the numerous references that occur in Genesis to the existing vestiges of the things related, his fictitious credulity would thus be embarrassed, and his contemporaries would be induced very particularly to examine them. As a number of commentaries and theopomies current among Pagans, which are occasionally quoted for arguments against the Mosaic history; because they were generally regarded merely as amusing fictions; and yet they concealed in figures, or expressed in plain words some truths, which agree with the book of Genesis, and afford a strong presumptive evidence in favour of this book. With respect to the law of Moses, this was extremely burdensome, expensive, and a very particular instance in its reference to the crime of idolatry, to which mankind were then extravagantly prone; and it was abhorred, according to human judgment, in the instance of prohibiting their furnishing themselves with harpies for war, and of condemning all the males of the whole nation to appear at Jerusalem three times a year. Nevertheless, it claims divine authority, and appeals to facts of the most notorious kind, and to emblems and ceremonies of the most peculiar nature, as the memorials of these facts. Can we then conceive, that any nation, with such motifs to rejoin, and such opportunities of detecting the forgeries of the book of Laws, Levities, Numbers, and Deuteronomy, could yet believe them, and fall upon the heavy yoke? That the Jews did not believe to the law of Moses, in these circumstances, is evident from the books of the Old and New Testaments, if we allow them the least truth and genuineness, even from profane writers, and from the present de-
fervance of it by the Jews scattered throughout all the kingdom of the world. Should it be said, that other nations have ascribed divine authority to their lawyers, and submitted to very severe laws, it may be alleged in reply, that the pretences of lawyers amongst the Pagans to inspiration, and the submission of the people, may be accounted for from their peculiar circumstances at the time, without recurring to real inspiration; and more especially, if we admit the patriarchal revelations related by Moses, and his own divine legislation, as heathen lawyers copied after these, and hence we derive a strong argument in their favour. Besides, no instance occurs among the Pagans, of a body of laws framed at once, and remaining unvariable; whereas the body politic of the Israelites assumed a complete form at once, and has preferred it with little variation, to the present time, and under many external disadvantages; thus supplying us with an instance altogether without parallel, and shewing the high opinion which they entertained of the great importance of their law. In short, of all the fictitious or forgeries, that can happen amongst any people, the most improbable is that of the Jewish body of civil laws, and it seems to be utterly impossible in the case of the law of Moses.

If we further examine the history contained in the books of Joshua, Judges, Ruth, Samuel, Kings, Chronicles, Ezra, and Nehemiah, and extending from the death of Moses to the re-establishment of the Jews after the Babylonian captivity by Ezra and Nehemiah, we shall find a variety of important facts, most of which must be supposed to have unhallowed themselves, either external and visible, or internal in the minds and memories of the people, as would verily them if true, or cause them to be rejected, if false. The conquest of the land of Canaan, the division of it, and the appointment of cities for the priests and Levites, Joshua; the fragmentary annals of the Israelites to the neighbouring kings, and their deliverance by the judges; the creation of a kingdom by Samuel; the translation of this kingdom from Saul's family to David, with his conquests; the glory of Solomon's kingdom; the building of the temple; the division of the kingdom; the idolatrous worship set up at Dan and Bethel; the captivity of the Israelites by the kings of Assyria; the captivity of the Jews by Nebuchadnezzar; the destruction of their temple; their return under Cyrus, rebuilding the temple under Darius Hystaspis, and re-establishment under Artaxerxes Longimanus, by Ezra and Nehemiah;—these events are some of them the most glorious, and some of them the most reproachful, that can happen to any people. How can we reconcile forgeries of such opposite kinds, and especially as they are interwoven together by various complicated and necessary connections, which do not admit of separation? The facts, indeed, are of such importance, notoriety, and permanency in their effects, that no particular persons among the Israelites could first project the design of deceiving them, that their own people would not concur with such a design, and that neighbouring nations would not permit the fiction to pass. Nothing but the invisible evidence of the facts, here alleged, could induce a jealous multitude amongst the Israelites or neighbouring nations to acquiesce. This must be acknowledged upon the supposition that the several books were published, or in the times when the facts that are recorded in them happened. But suppose all these historical books forged by Ezra—the hypothesis is evidently impossible. Things so important and notorious, so honourable and so reproachful to the people, for whose sake they were forged, would have been rejected with the utmost indignation, unless there were the strongest and most genuine traces of these things already amongst the people. They must therefore, in part at least, be true. If it be said that additions were made by Ezra; these additions must have been either of important or trivial matters. On the first supposition, the difficulty already stated recurs; and if the important facts are true, what possible motive could have induced Ezra to make additions of no importance? Besides, if any ancient writings were extant, Ezra must either copy from them, which destroys the present supposition; or differ from and oppose them, which would betray him. If there were no such ancient writings, the people would be led to enquire with regard to matters of importance, for what reason Ezra was so particular in things of which there was neither any memory, nor account in writing. Should it be said, that the people did not regard what Ezra had thus forged, this reduces the subject to question to matters of small, or of no importance. Besides, why should Ezra write, if no one would read, or regard? Further, Ezra must have had, like other men, friends, enemies, and rivals; and fame, or all of these, would have been a check upon him, and a security against him in matters of importance. If we suppose these books, instead of having been forged at once, to have been forged increasively, at the interval of one, two, or three centuries after the facts related, we shall involve ourselves in the same or similar difficulties. Upon the whole, then, we may conclude, that the forgery of the annals of the Israelites appears to be impossible, as well as that of the body of their civil laws. It is needless to examine the books of Esther, Job, the Psalms, Proverbs, Ecclesiastes, and Canticles; and we might proceed to the Prophecies. But this subject will be resumed under the article Prophecy. For the importance of the subjects comprehended in the books of the New Testament, see TESTAMENT, and Christianity.

We shall here subjoin some general evidences in attestation to the importance of the books of Scripture. That Jews and Christians have thought their sacred books very highly important, most genuine, and true, appears from the perfections and sufferings which they have undergone on account of their attachment to them, and because they would not be prevailed upon to surrender them. The preservation of the law of Moses, probably the first book written in any language, whilst many others of a later date have been lost, shews the great regard that has been paid to it; and from this circumstance we may infer, that this and the other books of the Old Testament have been preserved on account of their importance, or from some other cause, equally evincing their genuineness and truth. The great importance of these books appears also from the many early translations and paraphrases of them; and these translations and paraphrases seem to correct errors that are unavoidable in the lapse of time, and to secure their integrity and purity. The hesitation and difficulty with which some few books of the New Testament were received into the canon, shew the great care and concern of the primitive Christians about the canon, and the high importance of the books admitted into it; and afford a strong evidence of their genuineness and truth. The same observation is in a degree applicable to the Jewish canon. Moreover, the religious hatred and animosity which fulfilled between the Jews and Samaritans, and between several of the ancient sects among the Christians, convince us of what importance they all thought their sacred books, and disposed them to watch over one another with a jealous eye.

Further, the genuineness of the books of the Old and New Testaments may be evinced from the language, style, and manner of writing used in them. The Hebrew language, in which the Old Testament was written, being the language of an ancient people, who had little intercourse with their neighbours, would not change so fast as modern languages have
The agreement of the Scriptures with history, national, and civil, is a further proof of their genuineness and truth. The history of the fall agrees in an eminent manner both with the obvious facts of labour, sorrow, pain, and death, with what we feel and feel every day, and with all our philosophical enquiries into the frame of the human mind, the nature of social life, and the origin of evil. National history bears a strong testimony to Moses' account of the deluge. Civil history affords many evi- dences, which corroborate the same account. (See Deluge.) The Mosaic account of the confusion of languages, of the dispersion of Noah's sons, and of the state of religion in the ancient post-deluvian world, is not only rendered probable, but in a very high degree established, by many collateral arguments. See Contusion of Languages, Dispersion of Mankind, Inology, Sacrifice, &c.

The agreement of the books of the Old and New Testaments, with themselves and with each other, affords an argument both of their genuineness and truth. The laws of the Hebrews are contained in the Pentateuch, and referred to, in a great variety of ways, direct and indirect, in the historical books, in the Psalms, and in the Prophecies. The historical facts also in the preceding books are often referred to in those that succeed, and in the Psalms and Prophecies. In like manner, the gospels have the greatest harmony with each other, and the epistles of St. Paul with the Acts of the Apostles, and, indeed, there is scarcely any book of either the Old or New Testament, which may not be shown to refer to many of the red, the blue, or the other. For the illustration of this argument, let us suppose that no more recorded of the Roman writers than Livy, Tully, and Horace, would they not by their references to the same facts and customs, by the names of style in the same writer, and difference in the different ones, and numberless other such like circumstances of critical consideration, prove themselves, and one another to be genuine, and the principal facts related, or alluded to, to be true? Whoever will apply this reasoning to the present case will perceive, that the numberless minute, direct, and indirect agreements and coincidences, that present themselves to all diligent readers of the Scriptures, prove their truth and genuineness beyond all contradiction. See Acts, Epistles, and Testament.

The harmony and agreement of the several writers of the Old and New Testament appear the more remarkable, when it is considered that their various parts were penned by several hands in very different conditions of life, from the throne and sceptre down to the lowest degree, and in very distant ages, through a long interval of time; which would naturally have led a spirit of imposture to have varied its schemes, and to have adapted them to different stations in the world, and to the different vicissitudes of every age. David wrote about 400 years after Moses, and Isaiah about 250 after David, and Matthew more than 700 years after Isaiah. And yet these authors, with all the other prophets and apostles, write in perfect harmony, confirming the authority of their predecessors, labours to reduce the people to the observance of their instructions, and loudly exclaiming against the neglect and contempt of them, and denouncing the severest judgments against such as continued disobedient. Conclusively, as the writers of the Holy Scriptures, though they all claim a divine authority, yet write in perfect concordance and harmony, mutually confirming the doctrine and testimony of each other, and congeniality to establish the very same religious truths and principles, it is a strong proof that they all derived their inspirations from the same fountain, the wisdom of God, and were indeed under the direction and illumination of the same spirit. This leads us to add, that the unity of design, which appears in the dispositions recorded in the Scriptures, is an argument not only of their truth and genuineness, but also of their divine authority.

In order to perceive the force of this argument, it is only necessary to inquire what this design is, and how it is pursued by the series of events and divine interpositions, recorded in the Scriptures. (See Dispersion.) We may further add, that divine communications, miracles, and prophecies, recorded in Scripture, are agreeable to natural religion, and even seem to be necessary in the infancy of the world. (See Miracles, Prophecy, and Revelation.) It should also be considered, that the historical evidences in favour of the genuineness, truth, and divine authority of the Scriptures, do not become less from age to age; but, on the contrary, it may rather be presumed, that they increase. Since the three great concursing events of printing, the reformation of religion in the western parts, and the restoration of letters, so many more evidences and coincidences have been discovered in favour of the Jewish and Christian histories, as may serve, in some measure, to supply the want of th
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...those that have been lost in the preceding times; and as this improvement of the historical evidences is likely to continue, there is great reason to hope, that they will grow every day more and more irresistible to all candid, serious inquirers.

The moral characters of Christ, the prophets, and the apostles, prove the truth and divine authority of the Scriptures. The characters of the persons who are said in the Scriptures to have had divine communications, and a divine mission, are so much superior to the characters that occur in common life, that we can scarcely account for the more eminent figure of one, and much less for so large a succession of them, continued through so many ages, without allowing the divine communications and assistance, which they allege. Notwithstanding confidable imperfections that pertained to many of these eminent persons, and the heinous occasional offences chargeable upon some of them, yet the impartial reader should consider, whether the prophets, apostles, &c. were not so much superior, not only to mankind in an average, but even to the best men among the Greeks and Romans, as is not fairly to be accounted for by the mere powers of human nature.

If this statement should be disputed, their characters, however, are too good to allow the imputation of an impious fraud and imposture, which must have been the case if they had not divine authority. Besides, it should be recollected, that the undoubted and impartial manner in which the imperfections and faults of the eminent persons mentioned in Scripture are related, furnishes a remarkable additional evidence for the truth of such parts of the Scripture history in which such relations occur, besides such evidences as extend to the whole.

The excellence of the doctrine contained in the Scriptures is an additional evidence of their authority. This argument has great force independently of all other considerations. Suppose, for instance, that the author of the gospel, which goes under the name of St. Matthew, was not known, and that it was unsupported by the writers of the primitive times; yet such are the unaffected simplicity of the narratives, the purity of the doctrine, and the sincere piety and goodness of the sentiments, that it carries its own authority with it. The same observation is applicable in general to all the books of the Old and New Testaments; so that if there was no other book in the world besides the Bible, a man could not reasonably doubt of the truth of revealed religion. If all other arguments were set aside, we may conclude from this simple consideration, that the authors of the books of the Old and New Testaments, whoever they were, cannot have made a false claim to divine authority. The Scriptures contain doctrines concerning God, Providence, a future state, the duty of man, &c. far more pure and sublime than can in any way be accounted for from the natural powers of men, so circumstanced as the sacred writers were. Let the reader consider whether it can be reasonably supposed, that Jewish shepherds, fishermen, &c. should, both before and after the rise of the heathen philosophy, so far exceed men of the greatest abilities and accomplishments in other nations, by any other means than divine communications. Indeed, no writers, from the invention of letters to the present times, are equal to the penmen of the books of the Old and New Testaments in true excellence, utility, and dignity; and this is fairly such an internal criterion of their divine authority, as ought not to be refuted.

The many and great advantages which have accrued to the world from the Patriarchal, Judahical, and Christian revelations, prove the divine authority of the Scriptures. These advantages relate partly to the knowledge, and partly to the practice of religion. The internal worth and excellence of the Scriptures, as containing the best principles of knowledge, holiness, conversion and hope, and their consequent utility and importance in a moral and practical view, fully and directly demonstrate their divine original. The wonderful nature, and superior excellence, of the attempt made by Christ and his apostles, for reforming mankind, and making them happy in a future state, are evidences of their divine authority; which is further illustrated and confirmed by the manner in which the love of God and of our neighbour is taught and inculcated in the Scriptures. This may also be inferred from the doctrine of the necessary subordainment of pain to pleasure, and from the mutual instrumentality of beings to the happiness and misery of each other, unfolded in the Scriptures. The divine authority of the Scriptures may be further deduced from the superior wisdom of the Jewish laws, considered in a political light, and from the exquisite workmanship manifested in the tabernacle and the temple. The time and manner in which the Scriptures were written and delivered to the world, furnish arguments for their divine authority; nor is the want of universality in the publication of revealed religion any just objection to it. The exclusion of all great degrees of enthusiasm and imposture from the characters of Christ, the prophets, and apostles, prove their divine authority; and it may be also inferred, from the reception which Christ, his followers, and their descendents, have met with in all ages. See these arguments stated, illustrated, and applied at large in Hartley's Observations on Man, p. 350—411. See also on the subject of this article, Prideaux's Conn. vol. ii. 475, 497, 840. Dupin'sHist. of the Canons, ch. i. and ii. Kennicott's slate of the printed Hebrew text of the Old Testament, diff. ii. p. 295, &c. and Dacier's General Index, annexed to the second volume of his Hebrew Bible. Taylor's Scheme of Scripture Divinity, ch. 39. ch. 42.

The Jews, at first, were very reverent in communicating their Scriptures to strangers; despising and hating the Gentiles, they would not confide to them any of the treasuries concealed in the Bible. We may add, that the people bordering on the Jews, as the Egyptians, Phcenicians, Arabs, &c. were not very curious to know the laws or history of a people, whom in their turn they hated and despised. Their first acquaintance with these books was not till after the several captivities of the Jews, when the singularity of the Hebrew laws and ceremonies induced several to define a more particular knowledge of them. Jophesus (Contr. Apion, p. 1033.) seems surpris'd to find such flight footsteps of the Scripture history interposed in the Egyptian, Chaldean, Phcenician, and Grecian histories; and accounts for it from this circumstance, that the sacred books were not as yet translated into Greek, or other languages, and consequently not known to the writers of those nations. The first version of the Bible was that of the LXX. into Greek, in the time of Ptolemy Philadelphus, about 280 years before Christ; though some maintain that the whole was not then translated, but only the Pentateuch; between which and the other books in the version of the LXX. critics find a great diversity in point of style and expression, as well as of accuracy. See Septuagint.

Various kinds of books have been composed on the Bible, either to explain the sense, or make its doctrine more obvious, to facilitate the remembrance of it, or to emblesh particular opinions from it; such as Introductions, Appendices, Summaries, Manuals, Histories, Expositions, Commentaries, Harmonies, &c. Bibles are distinguished, according to their language, into Hebrew, Greek, Latin, Chaldean, Syriac, Arabic, Coptic, &c.; some account of each, and their several editions, &c. we shall here subjoin.

**Bibles**,
The Hebrew, or Talmudic, is either manuscript or printed. The print is less exact, but more common. The two kinds are easily distinguished from each other; the former being in beautiful characters, like the Hebrew Bibles of Bomberg, Stephens, and Plantin; the latter in characters, like those of Munder, and Grafton. F. Simon observes, that the oldest manuscript Hebrew Bibles are not above six or seven hundred years old; nor does rabbi Menahem, who quotes a vast number of them, pretend that any of them exceed six hundred years.

Dr. Kennicott, in his Dissertatio Generalis, annexed to his Hebrew Bible, p. 21, observes, that the most ancient MSS. were written between the years 900 and 1100; but though those that are the most ancient are not more than 800 or 900 years old, they were transferred from others of a much more ancient date. The MSS. preferred in the Bodleian library is no less than 800 years old. Another MS. not less ancient, is preserved in the Casaree library at Vienna. The same learned writer informs us, that almost all the Hebrew MSS. of the Old Testament, which are known at present, were written between the years 1000 and 1457; and hence infers, that all the MSS. written before the year 700 or 800, were destroyed by some decree of the Jewish senate, on account of their many differences from the copies then declared genuine. This circumstance is also alleged by Walton (Pr. Legomena, 4, 8.), as the reason why we have so few copies of the age of 500 years, and why even the copies of 700 or 800 years are very rare.

The Hebrew distinctions and denominations of the various parts of the Hebrew Bible, as they occur in the titles of the ancient MSS. will be easily understood by the following table of distribution.

**Pentateuch**

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<th>Prior</th>
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<th>Samuel</th>
<th>Kings</th>
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**Prophets**

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<th>Major</th>
<th>Jeremiah</th>
<th>Ezekiel</th>
<th>Hosea, &amp;c.</th>
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<td>Minor</td>
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<td>to</td>
<td>Malachi</td>
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**Cethubim, or Hagiographa**

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<tr>
<th>Job</th>
<th>Psalms</th>
<th>Proverbs</th>
<th>Daniel</th>
<th>Ezra, Neh.</th>
<th>Chronicles</th>
<th>Ruth</th>
<th>Esther</th>
<th>Lamentations</th>
<th>Solomon's Song</th>
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Dr. Kennicott, by the industry of his research, has formed a catalogue of the titles and places of above 440 different MSS. of the whole, or of parts of the Hebrew Bible: a number about three times as great as that of the Greek MSS. of the New Testament, which have been collected at a vast expense, and collated with a truly laudable zeal. (See Testament.) Of these MSS. 54 are preferred in the Bodleian library at Oxford, and 15 in different colleges of the university; 4 are reprinted in the public library at Cambridge; and 3 in different colleges; 27 are found in the British Museum; one in the Lambeth library; and one in the library of the Royal Society. The preceding MSS., with 7 copies of the Samaritan Pentateuch, amount to 112 copies, making 125 volume. Other MSS. copies are preferred at Nicaea, or Complutum in Spain, Alton in Swabia, Amsterdam, Arnholt-Defaum, Augsburg, Baden, Berlin, Berne, Bohemian, Bologna, Britz in Silesia, Cairo in Egypt, Cefena in Italy, Copenhagen, Dresden, Erford, Florence, Furt in Prussia, Glasgow, Halfe, Hamburg, Hanover, Heidelberg, Hiltal, Heile-Carl, Holba near Danemarck, Iena, Koninkgberg, Leipzig, Leydon, Lyons, Mechlin in Flander, Milan, Morzen, Nuremberg, Padua, Paris, Pekin, Rome, Schaffhausen in Swifterland, Stralsburgh, Toledo, Treviso near Venice, Turin, Vicence, Vienna, Ulm in Swabia, Upsal, Utrecht, Walhalla, Zerbli in Saxony, and Zurich. Besides these, there are others at Fex in Austria, Thebaldonica in Greece, and Confultipompe, Ethiopia, Malabar, and Conchin, at a small distance south of Grangone, where are about 4000 Jews, who have a synagogue, in which they are carefully kept, their records, engraved on copper plates, and where, it is said, they can hew their history from Nebuchadnezzar to the present time. See the sequel of this article.

The most ancient printed Hebrew Bibles are those published by the Jews of Italy, especially of Pefaro and Breffe. Those of Portugal, also, printed some parts of the Bible at Lisbon before their expulsion. This may be observed in the general, that the best Hebrew Bibles are those printed under the inspection of the Jews; there being to many mistakes to be observed, that it is feared possible for any other to succeed in it.

The first printed edition of the Hebrew Bible, or at least of that part of it, comprehending the prior prophets, was printed at Soncinam in 1486, according to Le Long (Bibl. Sacra); it contained also the posterior prophets, according to Wolius (Bib. Hebr. i. 397.); and it seems to have made a first or a second part to the next we shall mention, or Dr. Pellet's, which is generally the third. The edition presented by Dr. Pellet, in 1575, to the library of Exan college, being that of a third part of the Hebrew Bible, comprehending the Cethubim or Hagiographa, was printed at Naples in 1487. This whole edition was burst by the Jews, excepting this copy, which had the singular good fortune of escaping the flames. It is printed on vellum, in two folio volumes, and has many readings different from all the other printed copies, and contrary to the Mafora, which probably was one of the reasons for which the whole edition was destroyed. This edition is mentioned by Wolius in his "Bibliothea Hebrarum," as formerly belonging to Schreider of Gluckstadt. The antiquity of this edition is argued from its being printed on vellum, as was the case with the first printed books, and from its having variations in the text, which are not found in any later edition. The first edition of the whole Hebrew Bible was printed at Soncinam in 1488, and is mentioned by Le Long, who says that it was printed by Abraham, the son of Rabbi Ithain, or Chaim. Le Long and Wolius affirm, that they saw an Hebrew Bible in 8vo, printed at Brescia in 1494.

In the beginning of the 16th century, Dan. Bomberg printed several Hebrew Bibles in folio and quart., at Venice, most of which are esteemed both by the Jews and Christians: the first in 1518, (the dedication being dated in 1517,) which is the least exact, and generally goes by the name of Felix Pratensis, the person who revised it, and who, as Hoder says, (p. 461.) was "ext Ludo Monachus." This edition contains the Hebrew text, the targum, and the commentaries of several rabbins. It is not known from what particular MSS. the Hebrew text of this edition was taken; but it agrees most with very late MSS. and such as were corrected according to the Mafora. The editor, in his dedication to pope Leo, complains of the very corrupt state of the Hebrew MSS., and speaks of his having collated and corrected (probably by means of the Mafora) many MSS. which were used...
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In 1657, was published the London Polyglott, under the direction of the eminently learned Brian Walton, in which, however, the Hebrew text is printed Maforetically; almost an absolute agreement with the many former editions, and with the latest and worst MSS. Although the editor has shown clearly, that the Jewish transcribers have made many mistakes, and that the MSS. have many true readings, where the printed text is erroneous; and though he speaks (Proleg. 4. 12.) of having supplied some things which were not in the Venice or Basel editions, yet the only supplement which he has made is reëloring the two verbs in Joshua, which had been arbitrarily expunged by Maforetic authority. See Polyglott.

As to Hebrew Bibles in 4to that of R. Stephens, in 4 vols. Paris, 1539—1544, is esteemed for the beauty of the characters; but it is very incorrect. Plantin also printed several beautiful Hebrew Bibles at Antwerp; one in eight columns, with a preface by Ariamontanus, in 1571, which far exceeds the Complutensian in paper and print, and contents; this is called the Royal Bible, Biblia Regia, because it was printed at the expense of Philip II. of Spain; another at Geneva, in 1619; besides many more of different sizes, with and without points. Manasseh Ben Israel, a learned Portuguese Jew, published two editions of the Hebrew Bible at Amsterdam; the one in 4to. in 1635, who tells us in the preface, that he had altered a few letters; and where the most corrected copies differed, he took refuge in grammar rules and the Mafora; the other in 8vo. in 1632: the first has two columns, and for that reason is commodious for the reader. It is printed with points, in an elegant type, and has the Keri and Chetib in the margin. The 8vo. edition has vowel points and accents, and the marginal notes. In 1639, R. Jac. Lombroso published a new edition in 4to. at Venice, with small literal notes at the bottom of each page, where he explains the Hebrew words by Spanish words. This Bible is much esteemed by the Jews at Constantino-ple; in the text they have distinguished between words where the point kamets is to be read with a kames-lavaph, that is, by a, and not an a.

Of all the editions of the Hebrew Bible in 8vo. the most beautiful and correct are the two of Jo. Athias, a Jew of Amsterdam. The first, of 1661, is the Bible paper, which, notwithstanding its being corrected according to ancient MSS. is certainly so far as letters and words are concerned (agreeable only to the later, as the other printed copies were before it; but that of 1667 is the most exact. This was published by Leufden, who tells the reader, "Tibi damus Bibliam, impresa per Athianum, quibus correctiones numquam solam psekt." And yet, though the fun never saw of much implicit obedience paid to the Mafora before, the Rabbinists assure us, in their prefatory recommendation, that some whole words were here corrected "ex Mafora & a Maforeticis, qui fepem leges fecerunt." This supremely Maforetical edition appeared to their high mightinesses the States-general, so particular were the meritorious, that Athias, the typographer, was presented with a chain of gold, and a gold medal pendant. But it is somewhat extraordinary, that a Jew should thus be rewarded for an edition, in which Leufden (though a Christian) confesses, that he permitted the Latin contents, here added in the margin, to explain away some of the propheticies relating to the Messiah. Le Long, in loc.

Leufden's last edition of Athias was followed, in 1705, by Vander Hooght's very elegant edition. No corrections can be expected from this editor, who considered every letter in his book, howsoever it was introduced, as absolutely genuine, and maintained the Mafora to be infallible.
After Athias, three Hebrew proponents engaged in reading and publishing the Hebrew Bible; viz. Cladus, Jablonski, and Optilius. Cladus's edition was published at Frankfort in 1674, in 4to. At the bottom of the page it is the various readings of the former editions; but the reader does not appear to have been assisted by the poetical books; besides, as it was not published under his eye, many faults have crept in. That of David, edited by Jablonski in 1699, in 4to, at Berlin, is very learned as to letter and print; but, though the editor appears to have made use of the editions of Athias and Cladus, it seems, if it feared any thing different in the vars. of Domburg. For this man of eminent learning it was to lay the foundation for a reformation of the printed Hebrew text. This he has done in the preface, by making several excellent observations on the nature of the printed Hebrew MSS.; with the proper marks of their authenticity, and the great advantages to be derived from them. He has further shown, that the Jewish transcribers have committed many mistakes; that the Keri is various readings arising from the mistakes of transcribers; that the older MSS. have them in the text, but the later in the margin; and consequently, that the Masorah, which comprises the Keri in the margin, must be founded on the later copy; that one of the Hebrew MSS. at Berlin contains the words of various readings, and that the other old Hebrew MSS. have numerous differences from the printed text; and that these old MSS. have suffered many alterations from the late corrections of Masorah. He also states the publications of occurring, by due zeal and exertion, very ancient MSS. from such of the Jews as have been preserved in China, Ethiopia, Constantinople, Thessalonica, and other distant parts of the world. Jablonski is the first author, who, after announcing the actual existence of many various readings in the Hebrew MSS., has recommended both an accurate examination of those MSS. by known, and a diligent search after others, at present unknown, through the several quarters of the world. To him, therefore, belongs the honour of having planned the above scheme for correcting the various corruptions in the printed Hebrew text of the Old Testament; and yet not daring to praise what he recommends, he published the Hebrew text of the same, as it was adopted in his critically in Leiden's edition of 1697. His corrections have been collected almost entirely from the novel-points and success. The edition of Optilius was published in 4to, at Kiel, in 1709; the character is large and good, but the paper bad; it is done with a great deal of care; but the editor made use of no manuscript but those of the German libraries; neglecting the French edit., which is much more correct in all cases. Optilius copied from Leiden's Athias, though, he, like Jablonski, heeded the Massorah in his other places; but he did not add the Masorah, and he left only what was essential in his notes. He clearly states in his preface that he has copied from the Massorah as much as he could, and that he has simplified it. He printed the Psalms, last edited by him, in 1711: he has edited the Prophets, the Testament; and the Apocrypha, 4to, with the Massorah, with much industry. The book is notable for being the first Hebrew Bible, in 4to, that has been published, in 1776, the full value of the Hebrew Bible, in folio, entitled 

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entitled "Vetus Testamentum Hebraicum, cum variis Lectio-
nibus." The second volume, with the general disserta-
tion, was published in 1780. The text is that of Everard
Van der Hooght, in 1705, already mentioned, which is very
correctly printed, with the familiar Hebrew letters, remark-
ably sharp and well defined; differing from it only in the
dissipation of the poetical parts, which Dr. Kennicott has
printed in humilities, into which they naturally divide them-
selves; however, the words follow one another in the fame
order as they do in the edition of Van der Hooght; so that
any person may read those passages as prose, if he is so in-
clined; or may divide the humilities differently, according
to his own judgment. This edition is printed on an excel-
 lent size of paper. This edition is printed on an exquisitely
good paper, and emits the name, Dr. Kennicott, is exhibited in a column parallel with the Hebrew text; those parts of it only being intro-
duced, in which it differs from the Hebrew: and the rest of the Samaritan column being left blank, so that the eye
perceives at once, with the utmost ease, the variations of the
Hebrew and Samaritan texts. The numerous variations, both
of the Samaritan manuscripts from the printed copy of the Samaritan text, and of the Hebrew manuscripts from the
printed text of Vander Hooght, are placed separately at the bottom of the page, and marked with numbers referring
to the copies from which they are taken.

We shall subjoin to this article a breviate account of the life and
progress of that highly interesting and meritorious undertaking,
for the completion of which we are indebted to the indefatiga-
ble industry and perseverance of the late Dr. Kennicott. A very
general opinion seemed to have prevailed among learned men,
till about the middle of the last century, in favour of the
integrity of the Hebrew text; and Dr. Kennicott ingeniously
conceived, that he was misled by the common error. The Rabbins boldly asserted, and the Christians implicitly
believed, that the Hebrew text was free from error, and that
in all the MSS. of it, no instance of any various reading of
importance could be produced. The first person, who seems
to have combated this notion in the way of a regular attack,
was Ludovicius Capelius. From the differences he observed
between the Hebrew text and the version of the LXX. and
between the Hebrew pentateuch and the Samaritan penta-
tuch, from the palpable and manifest corruptions, which he
thought he saw in the text itself, and from the many reasons
which induced him to suppose that the vowel points and
the Masora were both a modern and an unfeles invention, he
was led to question the general integrity of the text; and
his enemies allowed, that in his attack upon it, he discovered
much learning and ingenuity. Still, however, he acquiesced
and admitted the uniformity of the MSS. But the matter
was not brought to the test of an actual collation of any
number of MSS. and versions, and little was done, till Dr.
Kennicott's attention was directed in 1748, by the late
learned Dr. Lowth, bishop of London, to an examination of
2 Sam. xxiii. 8. This circumstance convinced him of his
former error, and he was soon satisfied that the Hebrew
text was far from being perfect, and that it was impossible
to understand this single verse, without allowing that there
were in it four corruptions. Kennicott's explanation of this
verse having been approved by Dr. Lowth, he was requested
to examine the sublequent parts of the same chapter; which
was likewise performed, and the whole was published in 1753.
He proceeded to examine two parallel chapters in the first
book of Chronicles, and the second book of Samuel, and
found an omission in the former of no less than 34 Hebrew
words. Although such great corruptions were proved from the
printed text itself, and from the ancient versions, yet it
had not at that time been suspected, that there were now
extend any Hebrew MSS. which would at all affist in cor-
recting the faulty passages of the Old Testament. In the
sequel, however, this was found to be actually the case, for
Dr. Kennicott, on examining some of the Hebrew MSS.
in the Bodleian library, found that they contained, in the
chapters above cited, several of the readings which he had
recommended as genuine, before he had inspected those
MSS. A discovery so important to sacred literature being thus
begun in 1753, and extended to 70 Hebrew and Sama-
ritan MSS. in Oxford, it was soon much improved by con-
futing a number of others at Cambridge, and in London.
The inquiry was promoted by means of a catalogue of all
the other Hebrew and Samaritan MSS., which were then
known to exist in different parts of the world, published by
Dr. Kennicott in 1756, in a second dissertation on the Hebrew
text. In this work he endeavoured to produce a general
conviction, as to the certainty of the Hebrew printed
copies being much corrupted, and the great advantages to
be derived from MSS., by furnishing many various readings
of consequence, which are the true ones; and by confirming
the ancient version in a multitude of instances of little
moment in themselves, and therefore not likely to have
originated from design. It was also proved, that the Samaritan
Pentateuch was of great importance; that its MSS. would
serve to correct a variety of typographical errors, which
disgraced the two printed editions; and that the Samaritan
copies were frequently confirmed even by the Hebrew MSS.

In consequence of these interesting discoveries, Dr. Ken-
icott was solicited by the late archbishop Secker, and many
other learned persons, and by several societies of literary men,
particularly by the university of Oxford, to whose counte-
nance and encouragement the undertaking was recommended
by the late Dr. Hunt, professor of Hebrew and Arabic in
that university, to undertake a collation of all the Hebrew
and Samaritan MSS. in our own country. Discouraged at
first by the prospect of so arduous an undertaking, he at last,
in 1760, contended to engage in it. Of his progress, and the
circumstances that attended it, we have a detailed account
in the "Dissertatio Generalis," published with the second
volume of his Bible. Having proposed ten years as the
time which, he thought, would be necessary for collating the
Hebrew and Samaritan MSS., he was enabled by his singular
affability to fulfill his own expectations and those of the
public. Patronized by his majesty, and by a great number of
liberal friends and well-wishers to the undertaking, both
at home and in foreign countries, in the lift of whom are no
fewer than seven crowned heads, several princes, cardinals,
archbishops, and bishops, besides universities, public libraries,
and many of the most eminent literati in various parts of
Europe; Dr. Kennicott instituted various and extensive in-
quiries after MSS., at Constantinople, Warsaw, Venice,
Bologna, Mantua, Pavia, Genoa, Lisbon, Geneva, Utrecht,
Erfurt, Berlin, Stockholm, and Hamburg. The numerous
Hebrew MSS. of the latter place were collated by the cele-
brated Reimarus, who not only concurred in, but applauded
the undertaking. In the prosecution of this work, it was
discovered, that the printed editions of the Hebrew Bible,
which had been suppos'd to agree, and on the agreement of
which the notion of the integrity of that text had been
founded, very much differed from one another; and particu-
larly, that the oldest editions agreed most with the oldest
and best MSS., and the modern editions with the latest and worst
MSS. As one proof of this, it is alleged, that the variations
in the first edition (in 1488) from Van der Hooght (in 1705)
amount to twelve thousand. In the year 1767, Dr. Ken-
icott derived great advantage from his own examination of the
Paris MSS., both Hebrew and Samaritan, and from

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Dr. Gell's collation of all the passages quoted in the Talmud. An Hebrew MS., which once belonged to a synagogue at Jerusalem, was at this time purloined by his Britannic majesty; and our author himself, hoping to obtain other treasures from the East, set out for Canton, and had nearly succeeded in procuring two MS.'s from the Jews at Calcutta, in the province of Bengal. But though he failed in China, he exchanged in Amsterdam, and procured a complete Hebrew MS. from a Jew at New York. During the tenth and last year of this undertaking, eight David MSS. were sent to Oxford for the author's own examination, as well as six others from Toledo, by Dr. Bayer. Collations of other MSS. were furnished, at the same time, from Sittika, Cologne, Strasbourg, Keut, London, Leyden, and Ireland. The indefatigable author, having thus collected materials for his noble undertaking, undertook no less honourable to his country than to himself, proceeded to digest the variations, with which he was furnished, under their several books, chapters, and verses. During this operation, he formed a plan for a more complete scrutiny of the bell MSS. through Europe, by sending some well-qualified person to re-examine the MSS. already collated, and to examine the rest in passages of greater moment, and where success seemed at all probable. Mr. (afterwards Dr.) Bruns, a learned German, was selected for this embassy; and he was honoured with letters from the secretaries of state here, to all our foreign ambassadors, as well as from the rulers of the two synagogues in London. The places in which he thus examined MSS., during a tour of three years, were Paris, Louvain, Cologne, Mantz, Worms, Mainz, Nuremberg, Augsburg, Stuttgart, Carlsruhe, Strasbourg, Bâle, Zürich, Berne, Geneva, Turin, Cafale, Verulii, Milan, Genoa, Leghorn, Sienna, Rome, Florence, Bologna, Genoa, Modena, Reggio, Parma, Mantua, Palma, Venice, Udine, Gorizia, Gradisca, Trieste, Vienna, Delfen, Lübeck, Erfurt, Jersey, Defian, Berlin, Hamburg, Helvastia, Caffel, Amsterdam, Utrecht, Leyden, and the Hague.

The variations contained in nearly 700 bundles of papers, being at last digested, including the collections made by Dr. Bruns; and the whole, when put together, being corrected by the original collations, and then fairly transcribed into 30 folio volumes, the work was put to the press in 1773; and both volumes (as we have already said, with the general deviation, were finished in July 1774. To render the lucidity as well as the utility of this work, Dr. Keeneeffi has printed it with a surpringe detail of the text, which exhibit the opinions both of the Jew and Christian, as to the Hebrew text, from the earliest times down to the present. The Jewish test monies are arranged under five distinct periods, viz. from the time of Malachi, about 420 years before the birth of Christ, to the commencement of the Christian era; from Christ to the year 500 after Christ; from the year 500 after Christ to the year 1500: from the year 1500 to the invention of printing, about 1525; and from the invention of printing to the year 1740. The first Jewish testimony is that of Josephus and Philo, who speak of the Greek version as perfectly agreeing with the Hebrew text in their time; whereas Dr. Kennicott affirms the corruption of the Hebrew text before the time of those Jews, and also the very importance of the Greek version. For the pentateuch of this version being made about 150 years before Christ, and the other books being also translated into Greek about 100 years before Christ (as is inferred from the prologue to Ecclesiasticus), this version must have had many true readings, which the Hebrew was afterwards corrupted. Although in Pf. xvi. 10, the word for "thy holy one," which is now plural in the text of every copy expressed Masoretically, yet in the Greek version it is singular, which is the case in no less than 180 copies, agreeably to the quotations of St. Peter and St. Paul. And because the argument of these apophthegms urged upon the Jews, after the resurrection of Christ, depends on this word's being truly singular, Dr. Kennicott considers this various reading as of greater moment than any other which was ever drawn forth from MSS. He observes, that as the Greek version thus helps to prove the Hebrew text corrupted when it differs from it, so where the Hebrew text is corrupted, and that version agrees, it proves the corruption to be older than the version, and its text has since been attested to the Hebrew. Such very early corruptions occur, as he conceives, in Deut. xvi. 6. Gen. xi. 32, and Gen. xxxvi. 31—43. The third instance contains 13 verses, which, not being written by Mofes, were probably inferred from some Chronicles, i. 43—54. In some MS.'s of Genesis, into the margin, and thence taken into the text. This interpolation is so old as to be found in all the versions, and likewise in the Samaritan text. In the first instance, many words are omitted in the Hebrew text, and in all the versions, which are preferred only in the Samaritan text. In the second instance, the number 145 is corrupted into 205 in the Hebrew text, and in all the versions, and it is right only in the Samaritan text. Dr. Kennicott afterwards specifies two great corruptions: one, where the Greek version has been attested to the Hebrew, by addition; and another, in which the Syriac version has been thus accommodated, by change. The first relates to 20 verses, probably interpolated in 1 Sam. xvii.; and the second, to the word for body altered to the word for ears, in Pf. xvi. 7; on which word, body, the argument is grounded, in the 10th chapter of the epistle to the Hebrews: and a very old Syriac MS. in the royal library of Paris, translated from the Hebrew, has preferred the true word for body; and another has proved, that the Jews have altered their ancient copies, wilfully, from the Hebrew text and Greek version of Isaiah, xix. 18. respecting the temple at Heloplis; and also from their turning Mofes into Mahaffs, in Judges xviii. 30. Many other instances occur in the period now under consideration.

In the interval between the birth of our Saviour and the year 500, Dr. Kennicott remarks, that though the present Masora separates our tenth commandment into two, agreeable to the division now made by the Roman Catholicks; yet the unity of this commandment, as made by Protesants, is expressly confirmed by Philo and Josephus; and the Masorets' mark of separation at Exodus, xxi. 17, is absent from all MS.'s of Hebrew copies. Josephus is farther cited, as confirming the ancient chronology in the Greek version against that now in the Hebrew text; and likewise, having a number much more credible as to the gold and silver left by David. The same historian also confirms the reading in the epistle to the Hebrews, chap. vii. 4, from Genesis xvi. 20. He confirms, too, the Syriac version, and the edition of Sixtus, reading four in 2 Sam. xv. 7, and the Vatican MS. reading four in 1 Sam. xvii. 4. And though the later Jews have taken Daniel out of their prophetic books, yet Josephus calls him a prophet, in the former termes. It appears further under this period, that the Hebrew MSS. differed at the time of the composition of the Talmud; and that some of the true readings may still be found in this work. This fact is confirmed by several instances, and particularly by Pf. xvi.

Under the third period Dr. Kennicott considers the subject of the Keri, which for. This period also includes a collection of 216 variations between the oriental and occidental MSS. Proofs of differences are likewise deduced from the old Jewish books,
books, Rabbeth, Ficke Elizert, and Cozni. Saadia, who flourished about the year 1000, is also referred to as having read differently from the printed text; and Hai, about the same period, is known to have followed those MSS., which were defective in Joshua, chap. xxii., where two whole verses, absolutely necessary, though expelled by the Mafora, have been found in 149 Hebrew copies. At the end of this period, Dr. Kennicott introduces the Arabic version, generally ascribed to R. Saadia, which has hitherto been reputed only secondary, as if it had been always taken from the Greek or the Syriac; whereas it is honoured with the title of a primary version in several places: because it is found to agree with the Hebrew MSS. where both Greek and Syriac differ from it. This Arabic version has some very important readings, particularly in preserving that word which expresses the cause of God's anger against Balnam, Num. xxii. 22. It is also important where it is only secondary; because it helps to determine the true reading of the Greek version, where the Greek MSS. are now at variance; as in Psalm xviii. 14, lviii. 9, Micah v. 1, and Zech. xiii. 7. To the close of this period, Dr. Kennicott refers the two oldest and best Hebrew MSS. now extant, one at Oxford, and the other at Vienna. Of the Babylonian MS., supposed to be 800 years old, he observes, that it contains about 14,000 variations. In the pentateuch of this MS. the Greek version is confirmed by 149 various readings: the Syriac, by 98; the Arabic, by 82; the Vulgate, by 88; and the Chaldee paraphrase, by 42. It also agrees with the Samaritan text, against the Hebrew, in 700 instances. This, it is added, is the only one which has preferred a word of great importance for understanding, 2 Sam. xxiii. 3-7; which word is confirmed by the Greek version, and recovers to us a prophecy of the Messiah.

The fourth period, from 1430 to 1550, is introduced with an observation, that the oldest Hebrew MS., which has a certain date (1160), though containing only 9120 verses, has above 6600 variations. The testimonies of Aben Ezra, Jarchi, Maimonides, and Kimchi, who all flourished between 1150 and 1250, belong to this period. After taking notice of several true readings preferred by these four Rabbies, Dr. Kennicott introduces Mirin Halkovi, who died in 1241, with his pathetic lamentation over the many variations in the Hebrew MSS.

Under the fifth and last period, from 1450 to 1780, including the printed Hebrew text, Dr. Kennicott takes particular notice of the five first editions of different parts, and of the first edition of the whole together. He adds, that the Pardus, as first printed in 1477, contain about 600 variations; and that the Hebrew Bible, as first printed in 1488, contains above 12,000 of these, and some other very early editions, agree with the older MSS. much more than the editions after the year 1500, but still more than that by Jacob Ben Chaim, in 1526, which has been in general the standard down to the present time. About the year 1500, began the struggles of regard for the Mafora; and such MSS. as had been maseoretically corrected, were preferred for the editions of Cardinal Ximenes and Felix Plantin. But the Mafora being highly venerated by Ben Chaim, he chose for his text such MSS. as had the Mafora most perfect; which MSS. were the latest and the worst: and yet, unfortunately, this text became the general standard for the Antwerp, Paris, and London Polyglotts, as well as for other editions of the New Testament. The Jews have not, however, been satisfied with the correctness of Chaim's edition. For Rabbi Lonzano was afterwards encouraged to visit many countries, and to collate ten MSS. in order to render the text more perfect; and yet this complaint of errors was again renewed in 1655, by Manasseh Ben Israel. These testimonies are concluded with the Mantuan edition, called Minchah Shai, in which are about 2000 various readings, collected from MSS. and early editions, by Solomon Menorzi, in the last century: but it was not printed till 1744.

So far, at the time when Christians were generally inflicting on the perfection of the Hebrew text, the Jews were labouring to correct it, and lamenting its great imperfection in the following terms: "Quis reliquit decus? Quis ejicit raphanos et pipinas? Horror confecudit me: qui dum nodum multitudinem varietatum, quaecceiderunt in libros! Editores sunt obcecurati, neque lax et eis: neque eft qui quiserit celfationem hujus diversitatis! Exce nos palpantes tanquam cibi, in obiecratur diversitatum! Deus auferat tenebras nostrar!"

On examining the testimonies of Christian writers with regard to the state of the Hebrew text, Dr. Kennicott begins with the Evangelists and Apostles; and here he advertes to the quotations made in the New Testament from the Old: on which subject, see QUOTATION. It appears, by unquestionable evidence, that the Old Testament has been corrupted, in many instances; and that a full correction of the Hebrew text, grounded on the authorities of Hebrew MSS., the Samaritan pataleuch, and the ancient versions, will, in many places, restore to the Old Testament that harmony with which it has long been wanted. Injunctions occur in Gen. ii. 24. ; Psal. xxxvi. xxxiv. 22. compared with John xix. 36, 37. ; 36, compared with Hebrews x.; Jeremiah xxxi. compared with Hebrews viii.; Amos ix. compared with Acts xv.: Isaiah vii. 14. ; Psal. lviii. 19. ; Hosea. xiv. 14. ; Amos v. 26. ; Deut. xviii. 5. ; and Habakkuk iii. 4. Many arguments are adduced by Dr. Kennicott to shew, that the Jews have corrupted the chronology, from the creation to Abraham, either by subtracting or by adding 1300 years; and this great corruption is not in the Greek version, but in the Hebrew text; and that it was introduced in the second century. As it was a very ancient tradition, that the Messiah was to come in the sixth chiliad, because he was to come in "the last days," (founded on a mythical application of the fixed years' creation), it was contrived to shorten the age of the world from about 5500 to 3760, and thence to prove that Jesus could not be the Messiah, because at the era of his birth the time for the advent of the Messiah was not yet come. The time of this great corruption is shewn to have been between the years 175 and 200. The Old Italian version, made from the Greek about the year 100, is ad-ducted to confirm some ancient readings of the Greek version, particularly as to the more extended chronology. Dr. Kennicott, after various pertinent quotations from Ignatius, Justin Martyr, and Irenaeus, refers more particularly to Tertullian, with a view of proving that, in his time, the passage in Hie. iv. 4. expressed the sense ascribed to it in the 5th chapter of St. Matthew, where the Evangelist quotes it as foretelling, that "the Messiah should heal bodily diseases." The Hebrew words, it is shown, admit this sense: Tertullian so expresses them; and so did the old Greek version, which has been strangely altered in this place, out of opposition to the gospel." Origen is cited, as affording many interesting particulars, with regard to the differences in the Hebrew copies, and the true readings of the Greek versions; and Eusebius, Theophilus Antiochenus, Ephraim Syrus, Jerom, Epiphanius, Augulfin, and Sulcius Severus, are quoted to the same purpose. The fifth period of the Christian writers terminates with the oldest MSS. of the Greek version, particularly the Vatican and Alexandrian MSS. written about the year 400, which fee. Dr. Kennicott proceeds to the period that elapsed between the years 500 and 1000, and avails himself
of the Syriac versions (see Syriac) for introducing some useful observations on several passages, particularly Psalm xli. 6, 7, 9, and 2 Kings viii. 16; in which last passage three words are now interpolated in the Hebrew text; which, though they are also found in the Vatican and Alexandrian MSS. are not in the Complutian and Avice editors, nor are they in a manuscript of Kings, nor in some of the best MSS. and earliest editions of the Vulgate. See Vulgate.

From the year 1500 to 1540, the testimonies of Christians are very few. Yet soon after the Jews fled from the East into Europe in 1492, the Hebrew language was studied by several Christians, particularly by Lafrance and Anselm Groedel and Roger Bacon; and this last learned man, with his French servant at Oxford, bought many Hebrew MSS. when the Jews were expelled from England in 1290. In the 15th century, Raymond Martini accused the Jews of corrupting the Hebrew text; and he speaks of MSS. differing in Zechariah iii. 10, with respect to which Dr. Kennicott observes, that the copies have here the reading expressed in John xxii. 35. Dr. Kennicott also cites Nic. Lyrantus, Radulphus Aermachamus, Tottuus, Perez de Valentia, and Marsella Vicius.

Under the last period, from 1450 to 1750, Zwinglius takes the lead; and he extols the Greek version, and remarks the corrupt addition of Jerome. It is also mentioned, and Bibliander is celebrated on account of his excellent extant MS. on Ezekiel xx. 21. As it is very improbable that the news of the capture of Jerusalem should be nearly eighteen months in reaching Babylon, it will be satisfactory to know, on the authority of the Syriac version and eight Hebrew MSS., that this period was not more than six months. Having described the editions of Sixtus and Clement, Dr. Kennicott observes, that the present English version frequently expresses, not what the translators found in their Hebrew text, but what they thought should have been there; and that the 14th psalm, inserted in the liturgy of the Church of England, contains three verses not found at present in the Hebrew text of that psalm, but which are probably genuine. We have already mentioned Capell's opinion on this subject; and yet though he proved the corruption of the Hebrew text, by every argument except that of MSS., Buxtorf, the son, following his father, who affected the 14th verse in the 1st century, and all the ancient MSS., affirmed that in Hebrew MS., the world contained any version differing which agreed either with either of the ancient versions. It is needful to notice the opinion of Mede, Morinus, Beveridge, Walton, Hammond, Bocchar, Huet, Placek, Le Clerc, &c. on this subject. We shall have only obiter, with Dr. Kennicott, that Jabobow was the first editor of an Hebrew Bible, who spoke of any Hebrew MSS.; and it was not rare, by the help of which he made a free correction. Neither is it certain the two century, in John xix. 21, that Dr. Kennicott has established that, in consequence of the corruption of the 149 copies, Opinion declares that he, he has not, disobeyed the Mabura, in consequence of the whole of the MSS. and evidence of the world. Yet Vitringa also states, and Dr. Kencott, that it cannot be ascribed to one, and it may be, that he has been influenced by the practice of many, many MSS. which we have discovered. The original text, as it existed at the 1st cent., was corrupted by 2 Cor. xxvi. 5, in which the 14th verse, as it is found in 5 copies, is deleted by a reading of Hand xii. 19, by one of the 2 Cor. xxvi. 20, by the 1st and 15th Hebrew copies. J. H. Mede, although he published many versions of great merit, probably from an undue deference to the advocates of the integrity of the Hebrew text. Among those advocates we may reckon Wolfius, who maintained that mistakes might exist in some MS. copies, but not in all; because some one MS., or some one edition, always had the true reading. Carpzovius contended, that the Hebrew text has defended to us in the same state of purity in which it was first found; not indeed in all the copies, but in the best of the better fort; nor in these separately, but in such a manner; and he thought it needful to collect these from every quarter of the world, because, in his opinion, those which are near at hand will be sufficient; a concession which abridges his former doctrine. The learned Hallet, in his notes on the Holy Scriptures, published in 1729, alleges as a reason why the quotations in the New Testament differ from those of the Old, that the Hebrew copies have been altered since the days of the apostles. Bishop Hars, with whole testimonies Dr. Kennicott concludes his catalogue of Christian writers, contends earnestly for admitting the corruption of the Hebrew text. He rejects the titles of many of the psalms as not given by the authors of the Hebrew. He condemns the practice of varnishing over, instead of correcting, the corrupted readings; and he humbles the Hebrew MSS., the chief support of criticism, were wanting.

Dr. Kennicott closes his account of his labours under taking, with evince the great use to be derived from the Hebrew MSS. and ancient versions, for amending the printed Hebrew text; and with exhorting persons in power to render such corrections subservient to the public good, by procuring a more correct and a more intelligible English translation, or rather a revision of the present English translation of the Old Testament. These MSS., he says, strongly confirm the ancient versions, and enable us to accord to the times of Jerom, of the Apollines and even of Tobi-expand Philadelphia; and, he adds, it now remains to be seen in what kingdom or country through Europe, will be manifested the greater zeal for correcting the modern translations of the Old Testament.

The work of which, for the gratification of our readers, and with a view of recording and transmitting the honour of our country, where it was undertaken, and of the age in which we live, we have given a copious account, will appear in its pre-eminent importance and utility, whenever it shall be applied to the doable purpose of aiding a public and authoritative new translation of the Bible, or at least, of an effectual revision of the common version. In the translation of particular books of Scripture, by bishops Lowth and Newcome, and by others of inferior rank in the church, &c. we observe the advantage resulting from Dr. Kennicott's labours; but the full benefit can only be enjoyed, when the translation is complete, and authoritatively introduced into common use. It has contributed eminently to the honour of the king of Sweden, that he has been the full prince in Europe, who has heard his royal commands for executing a purgator of this kind; and Dr. Kennicott thinks, it would be cruel and barbarous to show that Great Britain, which has enjoyed such distinguished blessings of Providence, will be backward to procure a design. No perjury, whatever to their rank either in the church or state, can more justly oblige this generation for the Holy Scriptures, and their concern for the reformation and benefit of the world, than by aiding and correcting them, a cure of the kind. It would have also to obviate any objections against the truth or authority of divine revelation. It has been urged by lord Bolingbroke, and by other writers on the full of the act, or the Fy, that if the Scriptures had been from God, they would always have been preserved in their pristine purity. It is pertinent to bug them of this kind, Dr. Kennicott thinks, that neither the listened for the
the goodness of the Supreme Being can be justly imputed from the supposition that many errors have crept into the present text; because the most important matters are still obscure and certain, and men have always been able to derive from the Bible a rule both of faith and practice. For the illustration of this position, he appeals to the ancient churches, both Greek and Italian, and the modern churches of both Protestants and Roman Catholics; since, amongst all these, their sacred books taught them "what they must do to be saved!" though they contained many errors, the correction of which was very desirable. Indeed, the integrity of the sacred books could not have been preferred without a "miracle," perpetual as to time and universal as to place, which would consequently be a greater miracle than any in the Bible; nevertheless as many corruptions, in transcripts made from transcripts, ever since the year 400 before Christ, were unavoidable, it is happy that several versions, made 1500 or 2000 years ago, will correct some of these corruptions; and that the Hebrew MSS. still exist, will correct others. Upon the whole, it is of great importance, that the effect of these corrections should appear in its whole extent, and as speedily as possible, not only to Christians in particular, but to the world in general.

The learned Dr. John Bernard Roffi, professor of divinity and the oriental languages in the Royal Academy of Parma, undertook to make a collection of the various readings of the Old Testament, in imitation of that of Oxford; and for this purpose he examined by himself, or his friends, 1470 MSS. or printed copies. Of foreign MSS. 210, which had been omitted by Dr. Kennicott, were collated in the most important passages; and of ancient editions, either in his own possession, or to which he had access, the number amounted to 288, of which 250 are such as had not been collated by Dr. Kennicott. M. de Roffi announced his design in a tract, entitled "Apparatus Hebreo-Biblicus," and published at Parma in 1782, 8vo.; and he proposed to compile the result of his labours in 4 vols. 4to. The first volume was published at Parma in 1784, under the title of "Variae Legiones Veteris Testamenti, &c." or the various readings of the Old Testament, drawn from an immense number of MSS. and printed editions, compared with the Samaritan text and the ancient versions, and examined and appreciated by the most accurate rules and principles of facred criticism. This volume contains the "Prolegomena," and a clavis of the books of Genesis, Exodus, and Leviticus. In the introduction we have several curious critical discussions, from which we learn that this collection averts, as Dr. Kennicott's valuable and judicious labours had before done, instead of invalidating the integrity of the sacred text in matters of the greatest importance; as all the MSS. notwithstanding the diversity of their dates, and of the places where they were transcribed, agree with respect to that which constitutes the proper essence and substance of divine revelation, namely, its doctrines, moral precepts, and historical relations. M. Roffi charges the variations not merely on the copies but on the ignorance and temerity of the critics, who have, in all ages, been too ambitious of dictating to their authors, and who, instead of correcting the pretended errors of others, frequently substitute in their place real errors of their own. This author is of opinion, that the common reading of an ancient text ought never to be changed but by the authority of MSS.; and if there be any exceptions to this general rule, they are very rare; and the conjectural alterations of critics should be thrown into the notes. M. Roffi, however, observes, that we must not confound the alterations introduced into the sacred text by the injuries of time, the negligence of transcribers, or the boldness of critics, with those which have been made by public authority. The sacred writers of ancient times left, as he says, their records to other writers, who were often their disciples, as also to public scribes, and to magistrates, who revised them. In this revision, which was executed either by sacred authors, or by the public authority of the synagogue, corrections and retrenchments were made, where they were judged necessary. This, M. de Roffi thinks, appears evident from the present state of the sacred writings; and in confirmation of his opinion, he quotes the Syriac Interpreter, who, in a note placed at the end of the Pentateuch, says, that this work was composed by Moses, but was afterwards digested and finished by Joshua. He also conjectures that Moses himself made use of ancient records, both in his history of the creation, and in that of the deluge. He thinks that the frequent repetitions and anachronisms, which are disfigured in the book of Genesis, ought rather to be attributed to a writer anterior to Moses, than to scribes in after-times; or to the confusion of the ancient records themselves, as some have imagined. This opinion was proposed and maintained with singular ingenuity and erudition, before the time of Roffi, in a French work published at Bruxelles in 1755, and entitled "Conjectures concerning the original memoirs, which Moses appears to have made use of in composing the book of Genesis, together with remarks designed to confirm or illustrate the several conjectures." The revision, says Roffi, which Ezra made of the sacred writings, with the assistance of MSS. and according to the rules of criticism, both on his own authority as a sacred writer, and that of the council of which he was a member, did not annul the MSS. that were anterior to his time, either in the hands of the Samaritans, or in those of the Jews, from which those of the Cuthites or Samaritans had been taken, or in the hands of the Egyptians, or in those of the Babylonian Jews, who did not return to the holy land. The edition of Ezra remained entire till the destruction of Jerusalem; but it underwent several alterations before the time of the Maforites, whole critical labours or attempts with a view of securing the sacred code against future injuries are well known. Yet, notwithstanding these attempts and labours, some faults, which were anterior to their time, still remained; and others, though of little consequence, afterwards crept into the sacred text. The only sources from which we can derive warrantable corrections of these faults are, according to this author, the MSS., the ancient editions, the Samaritan text, the ancient versions, the parallel places, the analogy of the text or of the history, the testimonies of ancient writers, critical conjectures, and the Masora, which De Roffi treats with more respect than Dr. Kennicott, of whom he complains on that account. He subjoins many learned and judicious observations on the various sources, from which materials are to be derived for the necessary corrections. As to the MSS. he lays down rules for ascertaining their age, of which he must observe the date; and in order to understand their dates, he takes occasion of the various methods of computing time employed by the Jews, and the different eras from which they reckon. When the dates are wanting, it becomes difficult to ascertain the time of a MS., if it be anterior to the thirteenth century, Thoae which are anterior to the twelfth century are very rare; and the author minutely indicates the marks that distinguish them. The rarity of the ancient Hebrew MSS. has been occasioned by the Jewish custom of depositing their books and phylacteries in public places, from whence, to make place for others, they have been taken and buried in wells, or under ground, where they foon rot. Thoae of a very remote antiquity, which are no longer extant,
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tent, are often restored, in part, by copies which fill subdiv. With regard to ancient editions, Dr. Rollin distinguishes the Masoretic from those editions without the Masor., which are anterior to the year 1750, when the rabbinical Bible of Jacob ben Chain was published. Of 242 which he has collected, he reckons 30 which belong to the fifteenth century, and above 60 which are anterior to the first Masoretic Bible. The ancient versions enumerated by the author are the Greek, Chaldaic, Syriac, Arabic, and Persian; and among these, the Greek version of the Pent.-trach has not been published, which is in the library of St. Mark at Venice, and which he supposes to have been made in the twelfth or thirteenth century, by an Hebrew, from the Hebrew of Ezra or of Palestine; and not as the Septuagint, from the Egyptian or Hebrew text. The differences which are found in these versions must not be considered as various readings; since many of these diversities are to be attributed, says De Rollin, to the translat. themselves, who have sometimes taken great liberties with the original text, by altering it in their versions. For other particulars, we refer the learned reader to the work itself. The second volume was published at Parma, in 1783, and contains the books of Numbers, Deuteronomy, Joshua, Judges, Samuel, and Kings. The third comprehends I. Sam., Jeremiah, Exod., the twelve leas prophets, with the Song of Solomon, Ruth, Lamentations, Ecclesiastes, and Esther. And in the fourth, or last, are the Psalms, Proverbs, Job, Daniel, Ezra, Nehemiah, and Chronicles. Parma. 1786. The high price of Renan's and De Rollin's valuable works, induced M. Brudet to employ Dr. Dacier and Professeur Meiller, to collect the most interesting variations from the above works, and to print them under the text of his new edition of the Septuagint, printed at Lipsie in 1753, and again in 1769, under the title of "Biblia Hebracea, olim a Christiano Reuenecio edita, nuna deno, cum variis eftioniis, ex ingenti codicis copia, a B. Kennicott & J. B. de Rollin collatorum." Lipsie, 8vo. 1793.

BIBLE, Greek. The most ancient Greek version is the Septuagint; for an account of which, the manner in which it was found, the collation of its MSS., and other circum-\n\ncias relating to it, see Septuagint; see also Alexandrianc, and Vatican. The number of editions of the Bible in Greek is very considerable; but they may be all reduced to three or four principal ones, namely, that of Compton or Arcali de Hemmes, that of Venice, that of Rome, and that of Oxford. The first or Complutian edition was undertaken by the divine of Complutum, under the direction and at the expense of cardinal Ximenes, and finished in 1514, but not allowed by Leo to be publicized till 1520; nor were the copies of it distributed to the world at large before the year 1532. It was infected in the Polyglott Bible, usually called the "Complutensian Bible." In this edition the Greek of the LXX. is said to be altered in many places, in order to accommodate it to the Hebrew text, and to the Vulgate. For a more particular account of it, see Complutensian, and Polyglott. It has been reprinted in the Polyglott Bible of Antwerp, called "Biblia Regia," by Arna Montanus, in 1572; in that of the Commales, commonly called "Vulgate's Bible," in 1595; and in De Jay's Polyglott of Paris, in 1645. See Polyglott.

The second Greek Bible is that of Venice, formed from many ancients in copies by Andrea Atanasus, and printed by Aldus Manutius in 1518, and hence called the "Aldine Edition." This edition approaches nearly to the Roman, and is said to be purer than the Complutensian. Manusi says of it, that it is a copy of the simple interpretation of the ancient LXX.: but not pure, nor free from all inter-mixture of the words of Theodotion. Other observ. that it sometimes deviates from the LXX., and adopts the readings of Aquila; and that various glosses have event into it. From this Aldine edition all the German copies have been derived, which generally adopt the words of it, but differ from it in the order of the books, chapters, and some verses. The apocryphal books are printed separately after the red. This edition was reprinted, with the Complutensian Latin version, in 1520, by And. Crandatus: and again, in 1550, by Rich. Brevlinger; at Strasburg, in 1565; at Hamb. in 1565; at Frankfort, by the Wechelians, in 1577; and in other places, with some alterations, to bring it nearer to the Hebrew. The most commodious is that of Frankfort, in which they are published, from the Complutensian edition, the four last chapters of Exodus, and a great part of the 24th chapter of the Proverbs. There are also added little Scholia, which shew the different interpretations of the old Greek translation. The author of this collection has not annexed his name, but it is commonly ascribed to Francis Junius.

The third Greek Bible is that of Rome, or the Vatican (i.e. Vatican), formed from the Vatican copy by cardinal Caraffa, and other learned persons, who were employed in this work for nine years, by the order and under the auspices of pope Sixtus V. It was printed at Rome in 1587, with the Greek Scholia, collected from the MSS. in the Roman libraries. It was afterwards printed in Latin, with learned and useful notes, by Flaminius Nobilius, at Rome, in 1588. The Greek edition, with the Latin annexed, the distinction of verses, according to the Vulgate, the Greek Scholia, and the Notes of Nobilius, was printed at Paris, in 1628, by J. Moris, priest of the Oratory. In forming this edition, Caraffa made use of several ancient MSS., besides the Vatican, and particularly one procured from the library of Cardinal Bellarion, written in large letters, and another from Magna Gracia, agreeing with the Vatican; and Caraffa professed that it was his design, not to accommodate this edition to the Latin Vulgate, or the Hebrew, but to the ancient LXX. Notwithstanding some few trivial objections, this edition has extolled for its purity, its freedom from any material corruptions, and its superiority to all other editions. From this all the English editions have been derived. The Greek edition of Rome, or as Grabe says in his Prolegomena, that of Paris, has been printed in the Polyglott Bible of London, in 1657, to which Walton has added, at bottom, the various readings of the Aldine and Complutensian editions, and of the Alexandria MS., as well as of Marchiallani's and Carol. Barbinii's. It was printed at London in 1652, in 8vo, with some deviations with regard to the order of the books, the number of the psalms, &c.; at Cambridge, in 2 vol. 12mo, with a preface by the learned Pearson, in 1665; at Amsterdam, with the same preface, in 1683, by Liefden, 8vo; and at Leipsic, in 1697, 8vo, with the Greek Schola of the Roman edition, the parallel places and various readings, and a preface by J. Trizio, of Ulm. Another Greek Bible was published at Franeker, in 1779, by Lambert Boë, who professed to adhere to the Roman edition of the Vatican copy, and to subjoin at the bottom of the page, besides the Scholia of the Roman edition, all the various readings he could find, together with fragments of the versions of Aquila, Symmachus, and Theodotion. Breitinger, however, observes, that Boë, instead of adhering to the Roman edition, has followed that of Paris by Murray, or the text in Walton's polyglott. This edition of Boë has been long the common text-book of biblical scholar.
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scholars, who cannot easily purchase the Roman edition; although it is far from being a correct copy of its prototype.

The fourth Greek Bible is that done from the Alexandrian MS., begun at Oxford by Dr. Grabe, in 1707. An edition of a similar kind had been undertaken by Patricius Junicus, or Patrick Young, who proceeded no farther than the 17th chapter of the book of Numbers, and also propounded by Vossius, but not undertaken. In Grabe's edition, the Alexandrian manuscript is not printed such as it is, but such as it was thought it should be; i.e. it is altered wherever there appeared any fault of the copyists, or any word infected from any particular dialect. This same think an excellence, but others a fault; urging, that the manuscript should have been given absolutely and entirely of itself, and all conjectures, as to the meaning, should have been thrown into the notes. For the plan of this work, and the mode of its execution, we refer to the author's Prolegomena. A valuable edition of this work, enriched with various readings from the Vatican copy, and other manuscripts, and illustrated by critical dissertations, was published by Jef. Jac. Breitinger, in 4 vols. 4to. in 1730. Tigur. Helvet. A collection of the MSS. of the most ancient Greek version of the Septuagint has, within these few years, been undertaken by Dr. Holmes, canon of Christchurch, Oxford; and the first volume was published at Oxford in 1768, folio; for an account of which, see Septuagint. Walton's Prolegomena. Grabe's Prolegom. Hodii de Bibliorum Textibus originalibus, &c. p. 658; &c. Fabr. Bib. Graec. l. iii. c. 21. § 6. Tom. ii. p. 324, &c. See Septuagint, and Testament.

Bibles, Latin, how numerous formerly, may be all reduced to three classes; the ancient Vulgate, called also 'the old Latin,' or 'Vulgar Latin,' (see Latin Version), translated from the Greek Septuagint, for the use of the Latins, soon after their conversion to Christianity; which version was allowed to be superior to all the rest, being, as St. Augustine calls it, 'tenacior verborum cum perpexituate fententia;' which version being corrupted, Jerome, between the years 370 and 380, made a new Latin version from the Hexaplar Greek; the modern Vulgate, the greatest part of which is done from the Hebrew text; and the new Latin translations, done also from the Hebrew text in the sixteenth century. We have nothing remaining of the ancient Vulgate, used in the primitive times in the Western churches, but the Pfalms, Wildom, and Ecclesiastes. Nobiles has endeavored to retrieve it from the works of the ancient Latin fathers; but it was impossible to do it exactly, because most of the fathers did not keep close to it in their citations.

As to the modern Vulgate, there are numerous editions very different from each other. Cardinal Ximenes has inserted one in the Bible of Complutum, corrected and altered in many places. R. Stephens, and the doctors of Louvain, have taken great pains in correcting the modern Vulgate. See Vulgate.

The best edition of Stephens's Latin Bible is that of 1540, reprinted in 1545, in which are added, on the margin, the various readings of several Latin manuscripts, which he had consulted. The doctors of Louvain revised the modern Vulgate after R. Stephens; and added the various readings of several Latin manuscripts. The best of the Louvain editions are those, at the end of which are added the critical notes of Francis Lucas of Bruges.

All these reformation of the Latin Bible were made before the time of pope Sixtus V. and Clement VIII. since which people have not dared to make any alterations, excepting in comments, and separate notes. Sixtus V. who was advanced to the papal see in 1587, although the Latin Bible of Gregory XIII. was declared to have been restored to its primitive integrity, formed, by the assistance of learned persons, another edition; and issued a bull in 1589, resolving and declaring that this was to be deemed, without doubt or controversy, that which was acknowledged as true, legitimate, authentic, and unquestionable; forbidding the alteration, addition, or subtraction of the least tittle of it, and declaring such a mutilated edition defitute of credit or authority. Nevertheless, after the death of Sixtus V., this edition was suppressed by succeeding popes, as inaccurate and imperfect. A new edition was undertaken by pope Gregory XIV. and completed and announced by Clement VIII. in 1592, which, though different from that of Sixtus, and even repugnant to it, is received as authentic, under the name of Sixtus V.; and it is now the standard throughout all the Roman churches. This pontiff made two reformation; but it is the first of them that is followed. See Vulgate. From this the Bibles of Plantin were done, and from those of Plantin all the rest; so that the common Bibles have none of the after-corrections of the same Clement VIII. It is a heavy charge that lies on the editions of pope Clement, viz. that they have some new texts added, and many old ones altered, to countenance and confirm what they call the Catholic doctrine; witnesses that celebrated passage of St. John, tres fast, &c. Mr. James, an English protestant, has collected above 2000 articles, some of which are indeed of no great consequence, in which Clement's edition differs from that of Sixtus. Clement has adhered more closely to the Hebrew text; and his edition, says Dupin, is much more correct than that of Sixtus. He adds, though the vulgar version be not altogether free from errors and defects, it must nevertheless be confided that the council of Trent had sufficient reason to prefer this before all the other Latin versions, as Theodore Beza, P. Pagini, L. de Dieu, Cæsabon, Grotius, Walton, and some other protestants, have allowed. This version was the most ancient of all that were extant at the time of this council; the greater part of it was done by Jerome, a very exact and faithful interpreter. It had been used for many ages in the Latin church; it was written in a simple and natural style, and yet occasionally heightened by noble expressions; and upon the whole, says Dupin, it was the best and most perfect version.

There is a great number of Latin Bibles of the third class, comprehending the versions from the originals of the sacred books made within three hundred years. The first is that of Sanctus Paginæus, a Dominicus, under the patronage of pope Leo X. printed at Lyons, in 1410, in 1528, authorized by two letters of pope Adrian VI. and pope Clement VII. prefixed to it, the former dated in 1523, and the latter in 1526, and much cherished by the Jews. He employed 25 years in the execution of this work, and finished it before the year 1518. This the author improved in a second edition. In 1542, there was a beautiful edition of the same at Lyons, in folio, with fabola, published under the name of Michael Villanovæus, i.e. Michael Servetus, author of the fabola. Those of Zurich have likewise published an edition of Paginæus's Bible in 1410. And R. Stephens reprinted it in folio, with the Vulgate, in 1557, pretending to give it more correct than the former editions. There is also another edition in 1586, in four columns, under the name of Vetusbib; and we find it again in the Hamburg edition of the Bible in four languages.
In the number of Latin Bibles is also usually ranked the version of the same Papinius corrected, or rather rendered literal, by Ario Montanus; which correction is approved of by the doctors of Louvain, &c. was inserted in the Polyglott Bible of Philip II. and since that of London. The chief aim of Montanus has been to translate the Hebrew words by the same number of Latin ones so that he has accommodated his whole translation to the most scrupulous rules of grammar, without attempting his literal; and therefore this version may be considered rather as a grammatical commentary than a true version, and adapted to interest young beginners in the Hebrew, rather than to be read separately. There have been various editions of this in folio, quarto, and octavo; to which have been added the Hebrew text of the Old Testament, and the Greek of the New. The best of them all is the first, which is in folio, 1571. The translation of Thomas Malvenda, a Spanish Dominican, is more grammatical and barbarous than that of Montanus, and not much esteemed.

Since the Reformation, there have been several Latin versions of the Bible: from the original Hebrew by Protevangelists. The most esteemed are those of Munster, Leo Judae, Caalbano, and Tremellius; the last three of which have been reprinted various times. Munster published his version at Basle in 1534, which he afterwards revised; he published a corrected edition in 1546. Without rigidly adhering to the grammatical signification of the words, like Papinius and Montanus, he has given a more free and intelligible version; but by not deviating from the sense of the Hebrew text, he has retained some of its idioms. He has also added himself to the commentaries of the best Rabbins. Hautecoeur gives him the character of a translator well versed in the Hebrew language, whose style is very exact and conformable to the original. Caihalo's free Latin pleases most people; but there are some who think it too much affected, and defective of that noble simplicity and natural grandeur, and of that inexplicable energy of style, belonging to the originals, and some other versions: the best edition of it is that of 1573. Leo Judae's version, altered a little by the divines of Salamanca, was added to the ancient Latin edition, as published by R. Stephens, with notes under the name of "Vatablus'" Bible," in 1543. It was printed at Zurich in 1543, and is more elegantly written than Munster's, but sometimes recedes too far from the literal sense. It was condemned by the Parisian doctors, but printed, with some alterations, by the Spanish divines of Salamanca. That of Junius and Tremellius is preferred, especially by the Calvinists, and has undergone a great number of editions. It possesses much more of the true natural simplicity. The chief Hebraists are preferred, and the whole is exactly conformable to the Hebrew text, without the least obscurity or barbarity. Nevertheless, it is not without defects; relative pronouns are introduced, without attention to the Hebrew text, and they are charged with adding some words to express their own sense.

We may add a fourth class of Latin Bibles, comprehending the Vulgate edition, corrected from the originals. The Bible of Hierocles Clarinus is of this number: that author, not being contented with restoring the ancient Latin copy, has corrected the translator in a great number of places, which he thought ill rendered, so as to make them conformable to the Hebrew text. Although he corrected above 8,000 passages, he has omitted some to avoid giving offence to the catholics, by making too many alterations in the vulgar version. Some protostates have followed the same method, and among others, Andrew and Luke Oland, who have each published a new edition of the "Vulgate," corrected from the originals, according to the Hebrew text. They have inserted their emendations in a character different from the text of the vulgar version, instead of throwing them into the margin, and thus they have occasioned some confusion.

BIBLES, Oriental. At the head of the Oriental versions of the Bible, must be placed the Samaritan, as being the most ancient of all, though neither its age nor author have been ascertained, and admitting no more for Scripture than the Pentateuch, or five books of Moses. This translation is made from the Samaritan Hebrew text, which is a little different from the Hebrew text of the Jews. This version has never been printed above; nor anywhere but in the Polyglott of London and Paris. See Pentateuch, and Samaritans.

BIBLES, Chaldees, are only the glosses or expositions made by the Jews at the time when they spoke the Chaldee tongue. They are the work of Nestorius, or paraphrasts, as well as any strict versions of the Scripture. They have been inserted entire in the large Hebrew Bibles of Venice and Basile, but are read more commodiously in the Polyglott, being there attended with Latin translation, See Chaldee Paraphrase.

BIBLES, Syriac. There are extant two versions of the Old Testament in the Syriac language: one from the Septuagint, which is ancient, and made probably about the time of Constantine; the other, called antiqua & simper, made from the Hebrew, as from the Phœnician, about the time of the apostles. This version is printed in the Polyglott of London and Paris.

In the year 1555, Widmannstätten printed the whole New Testament in Syriac, at Vienna, in a beautiful character, after him there were several other editions; and it was inserted in the Bible of Philip II. with a Latin translation. The best edition of the Syriac New Testament is unquestionably that of Leyden, published by Schulten in 1708, and reprinted, much improved, at Leyden, in 1717. A new Syriac and Arabic Testament was printed at Rome, in 1793, by the Propaganda, for the use of the Maronite Christians in Syria. Gabriel Sionita also published a beautiful Syriac edition of the Psalms, at Paris, in 1525, with a Latin interlinear. See Syriac Version.

BIBLES, Arabic. Although the Christian religion was preached in Arabia, as well as in other countries of the East, at an early period, it never was the established religion of the country, as in Syria and in Egypt; for even the temple of Mecca was a heathen temple till the time of Mahomet. A translation of the Bible into Arabic was therefore wholly unnecessary before the conquests of the Saracens, when the Arabic became the vernacular language of Christian countries. Historical evidence on this subject extends no further than the tenth century, when Rabbi Saadah Gaon published an Arabic version of the Pentateuch; and if conjecture may be allowed (faya Martin, in his edition of Michael's Introduction, vol. iii. p. 599), we may suppose that most of the Arabic versions were made during the period that elapsed between the conquests of the Saracens in the 7th century, and the crusades in the 11th, especially about the middle of this period, when the Saracens and the Coptic, though they had ceased to be living languages, were still understood by men of education, and Arabic literature, under the patronage of Almamun and his successors, arrived at its highest pitch. The age in which the Arabic printed version, or versions of the New Testament, were written, is wholly undetermined; for we have no knowledge of the MSS. from which the Roman edition of the four Gospels (mentioned below) was printed; and all that we know of the MSS. used by Gabriel Sionita in his edition of the Paris Polyglott, and by Lepherin in his edition of the Arabic New Testament, is that the former used a MS. brought from Aleppo and written in Egypt in the 14th century, and the latter a manuscript.
script brought from Egypt, in which the gospels were written in the 13th, and the Acts, Epistles, and Revelation in the 14th century. But we are left wholly in the dark with respect to the century in which the versions themselves were made. The Arabic versions may be divided into four classes: viz. those taken immediately from the Syriac, from the Coptic, from the Greek, and from the Latin. That various Arabic versions have been made from the Latin in modern times by oriental monks residing at Rome, who being instructed by the Romish clergy to regard the Vulgate as the standard by which all other versions should be regulated, proposed especially to serve their brethren in the East, by translating it into their native language, is evident from what is related by Prosper Adeni, in his Biblical and Critical Journey to Rome, p. 178, and an Arabic version of this kind was actually published at Rome, in 1752, by Raphael Tuki, bishop of Arfan. As for those versions which are written in parallel columns with the Syriac and Coptic, of which copies exist in the royal library at Paris, it is reasonable to suppose that they were not made from the Greek, but immediately from the ancient versions with which they are connected, as the means of understanding them, after the languages in which they were written had ceased to be spoken. For the same reason, those annexed to the Greek texts were probably taken immediately from the Greek; but of these Greek Arabic MSS. only one has been discovered, namely, that in the university library at Leyden. Walton (Prolegomena, p. 96.) says, that there are two kinds of Arabic versions, one among the eastern Christians; one called the Syriac, and the other the Egyptian, from the countries in which they are used. Both these versions, according to Aug. Justinius, bishop of Nebo, were translated from the Greek. In the year 1516, Aug. Justinius printed at Genoa an Arabic version of the Psalter, with the Hebrew text and Chaldee paraphrase, adding Latin interpretations, which, he says, were taken from the Syriac or Antiochian version. There are also Arabic versions of the whole Scriptures in the Polyglotts of London and Paris, paid for by Justinius to be taken from the Egyptian or Alexandrian versions; and we have an edition of the Old Testament entire, printed at Rome in 1671, by order of the congregation de propagando fide; but it is of little value, as having been altered agreeably to the Vulgate edition. The Arabic Bibles among us are not the same with those used by the Christians in the East. Some learned men take the Arabic version of the Old Testament, printed in the Polyglotts, to be, at least, in the main, that of Sandias, who died in the year 942, and who translated the whole Old Testament from the Hebrew into the Arabic, expelling the Arabic in Hebrew characters. Their reason is, that Aben Ezra, a great antagonist of Sandias, quotes some passages of his version, which are the same with those in the Arabic version of the Polyglotts; yet others are of opinion that Sandias's version is not extant. For though the whole Hebrew Bible was thus translated by him, the Pentateuch only has been, as yet, published from his version. The other books, now in Arabic, in the Paris and London Polyglotts, were translated at different times by different authors; partly from the Greek, and partly from the Syriac versions; and few parts, if any, excepting the Pentateuch, were translated from the Hebrew text. The Arabic version is the latest of all the ancient versions of the Old Testament; however, that part of it which has been translated from the Hebrew, will affix in detecting some corruptions that have crept into the Hebrew text since, and those parts that are made from the ancient versions will affix in establishing the true readings of those versions. In 1622, Erpenius printed an Arabic Pentateuch, called also the Pentateuch of Mauritania, as being made by the Jews of Barbary, and for their use. This version is very literal, and esteemed very exact. The four gospels have also been published in Arabic, without and with a Latin version, at Rome, in 1591, folio. The Latin translation is printed under each line of the Arabic text, and is taken from the Vulgate, though the Latin text is in some measure altered, so as to make it correspond to the Arabic. In a representation of the baptism of Christ, annexed to it, the rite appears to be performed, not according to the Oriental custom of immersion, but according to the northern practice of aspersion; for our Saviour is placed, not in Jordan, but at the brink of the river, with his feet only immersed, while John the Baptist, kneeling on a rock, pours water on his head. The MS. from which this edition of the Arabic gospels is taken, is wholly unknown. Michaelis observes, that upon comparing it with the catechism of the Druses, the passages there quoted from the gospels coincide with this edition; whence he infers that this version must have been long and generally known in Asia. But from this coincidence no other inference can be justly drawn, except that the Arabic version of the gospels, printed at Rome in 1591, was made before the 11th century; for to that age the origin of the Druses is referred. Erpenius observes, in the preface to his Arabic New Testament, that this edition bears a great resemblance to the MS. from which he printed the four gospels, except the first thirteen chapters of St. Matthew. This version, says Michaelis, was certainly taken from the Greek; but father Simon (Hist. Crit. des Versions du N.T. ch. 18.) says, that upon comparing the Arabic version of the four gospels printed at Rome, and afterwards reprinted in the Polyglotts, with an Arabic translation of the Coptic version, he found them different; but that on comparing it with an Arabic translation of the Syriac version, he perceived a great resemblance. Hence he concluded, that it was taken, not from the Greek, but from the Syriac text. This version has been since reprinted in the Polyglotts of London and Paris, with some little alteration of Gabriel Sionita. This Gabriel Sionita, a Maronite by birth, from the neighbourhood of Libanus, and one of the principal editors of the Paris Polyglott, relates, that he made use of a manuscript written in Egypt in the 14th century; but he seems to have been unacquainted both with the name of the author, and with the age in which he lived. Le Long relates, that it was brought immediately from Aleppo to Paris. From this MS. the Arabic version of the Acts and of the Epistles was taken, which was printed in the Paris, and reprinted with additions in the London Polyglott. But this version of the Acts and Epistles can lay no claim to high antiquity; and though it was probably not taken from the Syriac, yet it is not certain whether it was taken from the Coptic or the Arabic. Erpenius published an Arabic New Testament entire, as he found it in his manuscript copy, at Leyden, in 1616, from a manuscript written in the Upper Egypt, in the 14th century. From two dates, which Erpenius seems to have founded, it is probable, that the manuscript used by him was a compound of two different manuscripts, one written in the 15th, and the other in the 14th century; and this is very consistent with the opinion, that the gospels in this manuscript were translated either from the Coptic or from the Greek, and the Acts and Epistles from the Syriac. There are some other Arabic versions of late date, mentioned by Walton in his Prolegomena; particularly a version of the Psalms preferred in Sion College, London, and another of the prophets at Oxford; neither of which has been published. The English society for promoting Christian knowledge published, in 1727, an Arabic New Testament, for the use of the Christians in Asia. Ten thousand copies were printed, but were sold in Europe; so that this edition is very scarce. Two
BIBLE.

Two copies are preferred at Cambridge, one in the university library, and another in the library of St. John's college. The text is taken from the Polyglot; but the editor Solomon Negri, by order of the society, altered it in those passages which vary from the reading of our present Greek text. The editor, says Michaelis, has taken the liberty of altering 1 John v. 7, without cautioning the reader that it was not taken from any MS.

An Arabic Bible is said to have been printed at Bukhara, in 1760, and the gospels at Aleppo, in 1766. Of these, as well as of the complete editions of the Arabic version, a description is given in Le Long's Bibl. Sacr. ed Mafch. P. ii. vol. i. p. 110—137. For an account of the MSS. of the Arabic version of the N. T. preferred in the different libraries of Europe, see Boerier's edition of Le Long's Bibl. Sacr. P. i. p. 231—240, or vol. i. p. 126—132. Paris ed. 1723; Ustr's Catalogue, N. 22—34 of the Arabic MSS.; and Note i. p. 5, ch. vi. in Martin's edition of Michaelis's Introduction to the N. T. In the university library are two Arabic manuscripts of the gospels, which formerly belonged to Cyrilus Lucaris.

Bibles, Coptic. There are several manuscript copies of the Coptic Bible in some of the great libraries, especially in the library of Paris. The Coptic version of the New Testament must be regarded as a principal version of considerable antiquity, because it has given birth to several others in the Arabic language; for since Egypt was invaded by the Arabs, who extinguished the old language, the Egyptians have generally turned to the Coptic N. T., an Arabic translation, which has almost superseded the original. Nubius, in his Description of Arabia (p. 86), relates, that though the gospels are still read in the Coptic version in the public service, it is not understood even by the priests; and that immediately after the leesons have been read in Coptic, the same are read in Arabic, which is the present language both of the Upper and the Lower Egypt. Thomas M' shall had once intended to print the Coptic version, and had even prepared the four gospels for the press, but he died before they were printed. Upon which the publication was referred for Dr. D. Wilkins, a native of Monm in Prussia, who, after having studied the Coptic, made a journey to Amsterdam with this view; but induced by several advantageous circumstances, he removed to Oxford, where his Coptic New Testament was printed in 1716, at the expense of the university. Besides a long preface, he added a Latin translation of the Coptic text, which Jabob ski and La Croze have criticized with some severity. It is said, however, that Wilkins took great pains to present the world with a faithful copy, and that his endeavors were not unsuccessful. He also printed the Pentateuch, with a Latin translation, in 1731. Since then a great variety of MSS. have been collected; and if Weide had undertaken the task, a more complete edition of the Coptic version might have been expected. The title of Wilkins's edition is "Novum Testamentum Egyptianum vel, Cicorium, et MSS. Bodleianus decipitem, cum Vaticane et Parisiensi textilibi, et in Latine fomeo en converti, David Wilkins, Jacobus Aylmer Pressley," Oxon. 1716, 4to. Mag. House.

In his Paragrapha Graeca (i. vi. c. 7. p. 31.), says that the Coptic MS. which remain, are not very ancient; and that he has not seen any older than 700 years. Wilkins, in his preface, supports the accuracy of the Coptic version by several arguments, the chief of which is drawn from Antioch, who began to lead an ascetic life about the year 271. Weide, as a native of Egypt, and ignorant of Coptic, read the New Testament. To the same purpose Weide (p. 97. of his Essay, mentioned below) maintains, that the Egyptian version used by Athanasius in the third century, was written in Coptic, because he actually read an Egyptian version of the Bible, and as he understood only the dialect of his own country, he concludes that the Coptic version existed before the middle of the third century. Ludovici Picaus, or Louis Picque, who was acquainted with the Coptic language, refers this version to the fifth century. See Mill's Prolegomena, 1759.

The readings of the Coptic have a striking affinity with those of the Latin version, and sometimes with those of the Codex Cantabrinus. The story of the adjectives is found in some copies, and omitted in others; but 1 John v. 7. is omitted in all. Wettstein has also observed, that the Coptic New Testament has a very great similarity to the quotations of Origen, Eusebius, Cyril, and to the Alexandrine manuscripts. The best accounts of the Coptic version are given in Simon's Histoire Critique des versions du Nouveau Testament, ed. 12.; in the Preface to Wilkins's edition of the Coptic New Testament; in Le Long's Bibl. Sacr. ed. Mafch. P. ii. vol. i. p. 10.; and particularly by the learned Weide, in a German daily printed in 1778, in vol. iii. of the Kielische Beytrage, p. 1—10. See Coptic.

article. His second argument is deduced from a Sahidic MS., which is probably of the second century, and which contains various passages both of the Old and New Testament, coinciding with some of the fragments of the Sahidic versions. His third argument is founded on an apparent coincidence of some passages in the fragments, with a manuscript containing two books of the fabrication of the Gnostics, and evidently written in the second century. It appears then, if no objections can be made to these arguments, that proofs may be alleged of a higher antiquity in favour of the Sahidic version than can be produced in favour of any other version of the New Testament; and it must of course be of the greatest importance in the criticism of the Greek Testament. At the same time it must be acknowledged, that the oldest historical evidence for the high antiquity of an Egyptian version is that of Epiphanius and Theodore; the former quoted by Semler in his "Apparatus ad Novi Testamenti interpretationem," p. 64.; the latter by Wilkins, in the "Prolegomena" to his Coptic New Testament, p. 6. From an examination of the various readings furnished by the above-mentioned fragments, it appears, that the story of the adulteress, John vii. 1-12, is not among them; in the Acts of the Apostles, ch. xxv. 28. the Sahidic version coincides with those Greek MSS. which have extem, not in, i Tim. iii. 16. they coincide with those which read ο in stead of η, and 1 John ch. v. has the sixth and eighth verses; but the seventh, which contains the testimony of the three heavenly witnesses, is absent. We have an account of the Sahidic version of the New Testament in "Friedrich Münsteri Commentarii de indole versionis N. T. Sahidice," Hafniæ, 1789, 4to. to which are annexed some fragments of the New Testament from manuscripts in the possession of cardinal Borgiæ. Some fragments of the Sahidic version of the gospels of St. Matthew and St. John have been likewise published by Mingarelli in his "Ægyptiorum codicum reliquiae, Venetiarum in bibliotheca Namana afferentes," Bonon, 1785, 4to. MSS. or rather fragments of MSS. of the Sahidic version of the New Testament are preserved in the libraries of Rome, Paris, Oxford, Berlin, and Venice.

Bibles, Ethiopic. The Ethiopians have also translated the Bible into their language. Chrysoflos, cited by Michaelis, says, that the Ethiopians had in his time a version of the Bible; but his evidence is unsatisfactory. Ludolf, in his history of Ethiopia, relates, that the Scripture was translated into that idiom of the Ethiopian language, which was at that time more peculiar to the inhabitants of Tigre, from the Greek version of the LXX, according to a certain copy used in the church of Alexandria, which the innumerable various readings that are inserted in the English Polyglott Bible from one of the same copies, plainly prove. As for the author, and time of the translation, he is unable to ascertain either; but he notes its being at the time when the Habefians, or Abyssinians, were converted, or soon after, and that it was gradually perfected. Mr. Bruce, in his "Travels," vol. i. p. 490, says, that the Abyssinian copy of the Holy Scriptures was, in Mr. Ludolf's opinion, translated by Frumentius, a bishop in the 4th century, who first preached Christlianness in Ethiopia; but Ludolf has left the matter undecided. See Hilt. of Ethiopia, p. 262 ed. 1682. Mr. Bruce himself inclines to this opinion. They divide the Old Testament, says Ludolf, containing 46 books, into four principal parts, and mix the apocryphal with the canonical. Walton, (Proleg. vol. i. p. 100.) says, that Gaulmin had an ancient MS. of the whole Ethiopic Old Testament, which was deposited in the royal library of Sweden. Mr. Bruce informs us, (vol. i. p. 489.) that he brought with him a copy of the Ethiopic version of the O. T. which he has deposited in the British Museum; but it does not appear that he brought a copy of any part of the New. Indeed, he says, (vol. i. p. 493.) that copies of the whole N. T. are in that country very scarce; that, except in the churches, he had never seen a single MS. which comprehended all the parts of it; and that even the transcripts of the Gospels were in the hands only of men of the first distinction. The Ethiopic version of the N. T. contains the whole of it, divided, according to Ludolf, into four separate parts, viz. the Gospels, the Acts, the fourteen Epistles of St. Paul, and the seven Catholic Epistles. The Apocalypse is added as an appendix, and entitled "Abukalams." Scaliger refers the Ethiopic version to the time of Justinian, at which period he dates the conversion of the Abyssinians: but Walton refers it to a much earlier period, and not far distant from the times of the Apostles. Whichever was the translator of it, it appears to have been taken immediately from the Greek: from the frequent confutation of words which found alike in the Greek, but which have not been confounded by any other translator, and from its agreement in many of its readings with the Alexandrine MS. and with the quotations of Origen. Neither of these circumstances can appear extraordinary, as it was natural for the inhabitants of Abyssinia to procure their copies of the Greek Testament from Egypt. The translation of the Gospels is much superior to that of the Epistles. This version was first published at Rome, in 1548 and 1549, under the pontificate of Paul IV. But the editors, who were natives of Ethiopia, had a very imperfect MS. of the Acts, the chains of which they were obliged to supply from the Vulgate. To this purpose, Ludolf observes, that the Acts of the Apologists, for the most part, were translated at Rome, out of the Latin and Greek, for want of the Ethiopic original. This original seems to have been the source from which our editions of the Ethiopic version of the N. T. have flowed; and it is probably preferred in the Vatican, though, it has not yet been described. Walton reprinted this Roman edition in the London Polyglott; but his copy, being in some places illegible, the editors filled up the deficiencies according to their own judgment, so that the Roman edition retains the same value, as if no other were extant. The Latin translation was made by Dudley Loftus, and corrected by Calfell; but it is of little worth, and has led Mill, and other collectors of various readings, into error. A more accurate Latin translation of the Ethiopic version has been published by professor Bode, under the following title, "Novum Testamentum ex versione Ethiopic: Interpretis in Bibliothecis Anglicanis editum, ex Ethiopic: lingua in Latin: translatum," Brunswick, 1752, 1755. 2 toms. 4to. The best extracts from the Ethiopic version, says Michaelis, are, and must be uncertain, because we have no accurate impression of the version itself; however, his editor (Dr. Marshall) observes, that if the Ethiopic version was made immediately from the Greek, and in an early age; if its readings coincide with the quotations of Origen, and the Greek MSS. of the Alexandrine edition, it seems to be entitled to the same privileges, as other versions of equal antiquity. The principal objection applies not so much to the version itself, as to our printed text, which is probably incorrect, as not being the result of a collation of different MSS. But the same objection may be made to the old Syriac version, in which, though various MSS. have been used since the original edition of Widmanstadt, the alterations that have been made deserve rather the name of corruptions than of improvements. Of all the books of the O. T. there never was any printed, but the Psalms and the Song of Solomon, in the Ethiopic language at Rome, in 1513; at Colona, in 1518; and since that time, with
There is a very ancient Armenian version of the whole Bible, done from the Greek of the LXX, by some of their doctors, about the time of St. Chrysostom. See Armenian version. The first printed edition of the Armenian version was published in the 17th century by Ufean, bishop of Erivan; because the Bible was at that time become scarce in Armenia, that a single copy cost 1200l. Hence a council of Armenian bishops assembled in 1662, ordered the Bible to be printed in Europe. Accordingly, three distinct editions were printed at Amsterdam; the first in 1665, containing both the O. and N. T. in 4to; a second, in 1668, including only the N. T. in 8vo., and a third, in 1698, in 12mo. The two first were printed under the direction of Ufean; but the last is the most beautiful edition. A complete description, particularly of the first of these editions, is given in Le Long. Bib. sacra, ed. Machi. P. II, vol. i. p. 172—176. 180. A lift of Armenian MSS. of the N. T. is given in Dr. Boerner's edition of this work, p. 176; or, vol. i. p. 138, of the Paris edition of 1723; see also vol. i. p. 76, of the Catalogus MSS. Bib. Regiae, and note 11 to 13. chap. vii. of Marsh's Michaelis. La Croze and G. Whiston have accused the editor of the above-mentioned edition of having corrupted, in some places, the Armenian text. It is certain, however, says Michaelis, that John v. 7, was not in his MS.; for Sardus declares that he had seen the MS. from which the Amsterdam edition was printed, and that it wanted that verse. Sardus, in the place referred to by Michaelis, speaks of one ancient MS. which he had seen, in possession of the bishop of the Armenian church, and which had been collated at Amsterdam, in which this passage did not occur. It is possible, however, and even probable, that Ufean had more than one MS., and the words of Sardus do not imply that. Nevertheless, we have positive evidence, that Armenian MSS. written before the time of the council at Ccez, in 1308, have not this verse. In the manner, John v. 4, is wanting in the Armenian MS. but inserted in Ufean's edition; and Le Croze observes, that Ufean himself acknowledges, in his preface, that he had altered some passages, from the Vulgate; and, as he candidly allows, with an intention to deceive, but from ignorance and supererogation.

Bible, Georgian. The Georgian version was first printed at Moscow, in 1645, fol. and a description of it is given by the learned Echirchos, in his "Allgemeine Bibliothek," or Universal History of Biblical Literature, vol. i. p. 153—169. From the description it appears, that the Georgian text was altered from the Slavonic, in the edition of Moscow, and it would therefore be of little value, if the criticism of the N. T. Two MSS. of the Georgian version of the Gospels are preserved in the Vatican. See Le Long, Bib. Sac. tom. i. p. 140, ed. Paris, 1724.

Bible, Persian. Some of the Fathers seem to say, that all the Scripture was formerly transliterated into the language of the Persians; but we have nothing now remaining of the ancient version, which was, certainly, done from the Septuagint. The Persian Pentateuch, printed in the London Polyglott is without doubt, the work of Rabia Jacob, a Persian Jew, summoned Tavmon, Tavunis, or Tadmon, from the city Tus, where the Jews had a famous academy. It was transliterated from the Hebrew text, for the use of the Jews, who lived in Persia, and printed in the Hebrew character, with the Hebrew text, and with the version of Okehod and Sada, at Constantinople, in 1551. From the collection of this, and other versions, we may derive a satisfactory explanation of the famous prophecy of Jacob concerning the advent of the Messiah, unperverted by the glosses of the Rabbis. We have likewise two Pericope versions of the four Gospels, of which the most ancient, and that which is of course the most valued by the learned, is printed in the London Polyglott, accompanied with a Latin translation by Dr. Sam. Clarke, and notes by Dr. Thomas Gresaves, contained in the appendix. This Pericope version of the four Gospels, which is the only part of the N. T. hitherto printed, was taken from a MS. in the possession of Dr. Pococke, and written in the year 1541, as appears by a declaration annexed to it. A new Latin translation has been published by professor Dods, at Heilsstadt, in 1730, 1751, with a preface containing historical and critical remarks on the Pericope version. Dr. Gresaves has very justly observed, that the Pericope is a translation of the Syriac, for it sometimes retains even Syriac words, and subjoins a Pericope interpretation; and in other places, confounds the meaning of words, that have a similar found only in the Syriac. This is likewise probable in itself; for the Christians, who lived scattered in the Persian empire, made use of Syriac as the language of the church, and as the language of literature; and it was common for the Persians to study in the schools of Syria, especially at Edessa. The principal use then of the Pericope version is in discovering the false readings that have crept, since that period, into the Syriac. It might be added, that the Pericope omits passages, that are wanting in no MS. or version except the Syriac; as Mat. xxviii. 46. Mark vii. 34. There is another Pericope version of the Gospels, which Abraham Wheelock began to print in 1653, and which was published after his death by Pierion, in 1657. It was published in London, and three MSS. were used by the editors. Walton, in his "Prolegomena," vi. 9, p. 102, informs us, that he knew of only three MSS. of the Pericope Gospels, one in the possession of Dr. Pococke, which he used, and the other two in the libraries of Oxford and Cambridge, different from the other, and less ancient. If this be the case, Wheelock must have used MSS. containing distinct versions, and his text must be of a mixed nature, and of less value in that respect, as well as in point of antiquity, than that of the Polyglott. Wheelock, or rather Pierion, whose name is prefixed to the second title-page, was of opinion, that this Pericope version was made from the Greek, but Roumou believed it to have been taken from the Syriac. Walton mentions two Persian versions of the Psalms, that were made in the 17th century from the vulgar Latin.

Bible, Gothic. It is generally said, that Ulphilus, a Gothic bishop, who lived in the fourth century, made a version of the whole Bible, for the use of his countrymen. Philogoria (Hist. Eccles. i. c. 5.) affirms, that Ulphilus omitted the book of Kings, from an apprehension, that the moral spirit of his nation might be injured by the relation of the Jewish wars; yet this opinion has been confuted by Kaestel, in his learned commentary, p. 253. Michaelis, who was once a strenuous advocate for the opinion, that this was a Frankish version, has since changed his mind, and, in the later edition of his Int. to N. T. vol. ii. p. 130, ed. Marth, expresses his conviction, that it was Gothic. For an account of the author, see HILPERINUS; and to the account already given of this version under the article RENMESSUS CODES, we shall here subjoin the following particulars. From the martyrology of Nicea, preferred by Simeon Metaphrastes, it appears, that the version was made immediately from the Greek. Besides, independently of that evidence, it is natural to conclude, that a native Cappadocian, who was bishop of a nation in the neighbourhood of Constantinople, and was sent ambassador to the Greek emperor, would translate from the original Greek, with which he was much better
In the Gospels it agrees with the Codex Stephani more frequently than with any other Greek MS. In the Catholic epistles it agrees, in general, with the Codex Alexandrinus, and frequently in the Revelation. In the Acts and in the Epistles of St. Paul, it agrees, in general, with the most ancient MSS. but sometimes with one, sometimes with another, yet most frequently with Wetstein's Codex E. Of the readings adopted by Griesbach in the text of his Greek Testament, the Slavonian version has at least three-fourths. Where the united evidence of ancient MSS. is against the common printed reading, the Slavonian version agrees with the ancient MSS. It has not been altered from the Vulgate, as some have supposed, though the fact is itself almost incredible. It varies from the text of Theophylact, in as many instances as they agree; and their coincidence is to be ascribed, not to an alteration from Theophylact, but to the circumstance, that both Theophylact and the authors of the Slavonian version used the Greek edition. The Slavonian version has few or no readings peculiar to itself, and what the critics call "lectiones singulares."

**Bible, Spanish.** There are two translations of the Bible into this language: one done by the Jews, from the Hebrew, and first printed at Ferrara, in 1553, and at Amsterdam, in 1661; the other by Cañadore Reyna, printed at Basil, in 1569. A corrected edition of it was printed at Amsterdam, in 1602, and at Frankfort, in 1622. This translation was made from the Hebrew, or rather from the version of Paganus, and the New Testament from the Greek. There is a translation of the N.T. in Spanish done by Francis Enzinas, and dedicated to Charles V. of which there are several editions; and another different Spanish translation of the N.T. printed in 1596.

**Bibles, Italian.** There are four Italian versions: the first towards the close of the 13th century, by James de Voragine, archbishop of Genoa, who translated the whole Bible into Italian, from the Vulgate; which ancient version is quite lost; the second by Bruciolus, in 1530, who translated the Bible from the Hebrew, or rather from the version of Paganus, and dedicated it to Francis I. king of France; the third by Malherbi, a Venetian and Benedictine monk, abbot of St. Michael de Lemo, translated from the vulgar Latin towards the end of the 15th century; the first edition of which was published in 1471; one of them, in 1477, revised by friar Martin, a Dominican; and afterwards printed at Venice in 1541; and the 4th by Diodati, a Protestant, which is much esteemed, and has been often printed. This edition, which was conformable to the French edition of Geneva, was first published in 1607, and again a second time in 1641. The New Testament was translated by father Zachary, a Dominican friar of Florence, and printed apart at Venice, in 1542. An Italian edition of the Epistles and Gospels was printed in 1583.

**Bibles, French.** The most ancient translation of the Bible into French is that of Guiards de Moulins, a canon of St. Peter d'Aire, in the dioceze of Tournai, who was employed in translating the historical books of the O. and N.T. from the year 1291 till 1294. Of this translation there are several editions in the Paris library. Some historians affirm that Charles V. king of France, caused the Bible to be translated into French by Nicholas Orefme, superior of the house of Navarre, and doctor of Paris. These, and some other translations of parts of the Bible, are extant in MS. in the Paris library. The first French Bible was printed by order of Charles VIII. and dedicated to him, and consequently before the year 1498; being the translation of Guiards de Moulins. The New Testament was printed in French by Cochin, printer of Paris, in 1523. But
the first edition of the whole Bible, translated from the vulgar text into French, was published, in 1560, at Noyon, by Martin Lepetereau, with the preface by Charles V. The first edition of this Bible, in 1560, is in the Paris library; and the second, in 1564, which is larger, is extant in the libraries of St. Gemery de Bea, and of St. Genevieve. These two editions, that of Robert Olivétan, the first published by the Protos, in 1555. The translation above-mentioned was printed the third time at Antwerp, in 1560, and is preserved in the Protos’ library of the college of Louis le Grand. This translation was revised by the clergy of Louvain and was the foundation of all the French Bibles that have been published either by the Catholics or Protestants. The text is that of Robert Olivetan, a Fleming of Calais, who has copied the Antwerp translation, and merely corrected such passages as differed from the Hebrew text. A new edition was given by Calvin, which comes nearer to the vulgar Latin; and of this Bible many editions were published between the years 1560 and 1561. In 1560 was published a new edition of the Bible, revised by Theodore Beza. In the following year another French translation of the Bible, from the Latin version of Diodati, was published, and held for some time in estimation by the Calvinists. In 1566, the Geneva translation was again corrected, and rendered more conformable to the Hebrew and Greek text. This was revised by Molitor, Delfantins, ministers of Geneva, and printed with notes at Amsterdam, in 1669. In the year 1555, Sebastian Catalano published another French translation of the Bible from the Latin, the style of which is affected and offensive.

A reformation of the French Geneva Bible, by Renatus Benedict, professor of divinity in the college of Navarre, was published in 1566. This was condemned by a brief of Gregory XIII. in 1575. A new edition was undertaken some time after, altogether conformable to the Latin, and free from the errors of the Calvinists, by the doctors of Louvain, who followed the old Antwerp translation, and that of Olivetan, which they corrected: which was printed by privilege from the king of Spain, and under the sanction of the licencé of the prefect at Antwerp, in 1575; at Lyons, in 1575; and in several other places. The subsequent Bibles were for some time copies of the Louvain edition, with some corrections; such were that of Peter Bess, printed at Paris, in 1563, and that of Peter Frison, printed at Paris, in 1562. Corbin’s Bible, printed in 1564, and approved by the doctors of Pothecars, recedes more than the rest from the Bible of Louvain, and adheres more closely to the literal sense of the vulgar Latin. A new version of the diction of Louvain, revised and corrected accordantly to the text of the ancient Vulgate, was published by father Veron, in 1647, and dedicated to the clergy of France. The translation of Albert de Marrella, is done from the Greek text, and the version of Erasmus, and was first published in 1650, again in 1651, and a third time in 1652. The edition of the N. T. called the edition of Mons, was published in 1667, under the name of Jaques Migeon, printer at Mons. Father Amelot’s translation of the N. T. was first printed at Paris, in 1666. Godin’s translation was printed at Paris, in 1668. The whole Bible was also translated by Isaac de Maître, of Sacy, from the Vulgate, and partly published in his life, and afterwards continued by Peter Thomas, lord of Fosse. Du Queule’s translation of the N. T. differs little from that of Mons, otherwise than by being more conformable to the vulgar Latin. Father Bouhallon has also published a translation of the N. T. and many others have in later times translated either the whole or various parts of the Bible.

**Bibles, German.** Luther’s translation of the Bible into German, was done with the assistance of Martin, and other of his disciples, the Old Testament from the Hebrew, and the New from the Greek, in 1524, and the publication of it, in several succeeding editions, very much contributed to the progress of the reformation. This was followed by a German translation by Jeron Emser, a Catholic, who in his notes criticizes that of Luther; and by another translation, done by John of Dittenberg, from the vulgar Latin, in opposition to that of Luther. Luther’s edition, revised by the Zwinglians and Calvinists, in various editions, was published at Nuremberg in 1528, and at Worms in 1535, to the dissatisfaction of the Lutherans. The German translation of Paul Eber, a Lutheran, was printed at Wittenberg in 1534, and German translations were also printed by Leon Juda, and John Pifcator, both Calvinists. A new translation in German, by Jasper Ulenberg, a Catholic, not to mention many others, was printed at Cologne in 1650, and was much used in Germany.

**Bibles, Flemish.** The Catholics in the Netherlands had several Flemish translations of the Bible in the 16th century. One was printed in 1548, which was translated by Nicholas Van Wijngaerdt, who says that he followed a Flemish translation printed in Holland 70 years before, i.e. long before the reformation. This Bible was revised by the doctors of Louvain, and printed afterwards at Antwerp in 1599, and often since. The Protentants in the Low Countries had for a long time only a translation made after the German Bible of Luther, till in pursuance of an order issued by the synod of Dort, in 1618, they had a new translation printed in 1637, exactly conformable to the Hebrew text of the Old, and the Greek of the New Testament. The Arminians, dissatisfied with this, made another Dutch translation from the Greek, which was printed at Amsterdam in 1680.

The northern nations, who embraced the doctrines of Luther, have no other translations of the Bible besides those done in the vulgar tongue after the German of Luther. The Swedish translation was made by Laurence Perri, archbishop of Uppsal, a disciple of Luther, and printed at Stockholm in 1646. The Danes have also one in their language, published in 1654, and since revived and reprinted in 1693. There is also a translation of the Bible in the Icelandic tongue, which seems to be the ancient language of the Norwegians or Goths: and another Finnish translation in 1648. The Laplanders have also the Psalms, and some other books of the Bible, translated into their own language. In the Polish language, the Socinians have a Bible printed in 1563, and they have likewise a Polish Bible in Lithuania, printed in 1652, done from the Greek and Hebrew by Simon Budd. Sand also mentions a translation of the New Testament by Martin Czeczowicz, a Socinian, printed with notes in 1577. Pepe Gregory XIII. employed the Jesuit Vichi to make a new translation of the Bible in the Polish language, which was printed at Cracow in 1599, with the approbation of Clement VIII. The Bohemians have a Bible in their language, with notes, printed in Germany from 1572 to 1601. The Hungarians have a translation done by George Calai, a Jesuit, and printed at Vienna in 1626. They have also another more ancient, printed at Frankfurt in 1668, and at Oppenheim in 1612.

**Bibles, Indian.** A translation of the Bible into the North American Indian language, by Elliott, was published in 1610 at Cambridge, in 1615.

**Bibles, Saxon.** After the Saxon inhabitants of this country were converted to Christianity, we have reason to believe that they soon had the whole Bible in the characters of their own country, and that the four Gospels in the T

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fame language were read in their religious assemblies. The whole scripture is said by some to have been translated into the Anglo-Saxon by Bede, about the year 701; though others contend that he only translated the Gospels; and others ascribe to him only the gospel of St. John.

We have certain books, or parts of the Bible, by several other translators; as, 1. The Psalms, by Aldhelm, bishop of Shireborn, contemporary with Bede, about the year 705; though by others this version is attributed to king Alfred, who lived near two hundred years after, and who is said by Mr. Fox to have translated both the Old and New Testament into his native language; and by others to have translated the greatest part of the New Testament; but the authority on which these assertions is too precarious to claim any great degree of confidence. On equally uncertain authority it has been said, that the whole Bible was translated into the Saxon language in the reign of Athelstan. Bale, however, “Script. Brit.” cent. 2. c. 27, cites the testimony of Malmesbury to this purpose; and archbishop Usher refers this to the year 950. Some books of the Bible were translated by Eadred, or Egbert, bishop of Lindisfarne, about the year 685, according to the conjecture of Mr. Sel- den. A celebrated version of the four Gospels in the Saxon language, said to be made by one Alfred, a priest, is reported to have been found in the celebrated code of bishop Eadred. Aldelin is said to have written a letter to Ead- fried, extant in “Wharton’s Autolium Hist. Dogm. Usherii,” p. 51; in which he exhorts him, for the common benefit and use of all people, to put the scriptures into the vulgar language, which Butler, in his book against the vulgar translation, says he did. And archbishop Usher, in his “Hist. Dogm.” c. 5, informs us, that the Saxon translation of the Evangelists, done by Eadred, without distribution of chapters, was in the possession of Mr. Rob. Bowyer. In the Cotton library is a book of the four Gospels, said by Wharton, in his “Anglia Sacra,” part i. p. 605, to be written by bishop Eadred himself, and which had been adorned with pictures, gold, and jewels, by Ethelwold, bishop of Winchester. Eadred, or Egbert, died in 721. But some have doubted the existence of such an Anglo-Saxon MS.

A version of the Psalms in Anglo-Saxon was published by Spelman in 1640. 2. The Evangelists, still extant, done from the ancient Vulgate, before it was revised by St. Jerom, by an author unknown, and published by Matth. Parker in 1571. This was printed from a MS. now in the Bodleian library, under the direction of archbishop Parker, by John Fox the martyrologist, with the following title, “The Gospels of the four Evangelists, translated in the old Saxon tongue out of the Latin into the vulgare tongue of the Saxons, and now published for the information of the same”; at London, by John Daye, 1571. This edition has a preface by John Fox, and is dedicated to queen Elizabeth. Another edition of this version was published at Dort in 1665, by Dr. Thomas Marshall, who tells us that he could ascertain neither his author nor age. An old Saxon version of several books of the Bible, was made by Elfric, abbot of Malmesbury, and afterwards, viz. 1299, by bishop of Canterbury; several fragments of it were published by W. Lilly, or W. L’Hote, in 1658, the genuine copy by Edw. Thomas, 1699, at Oxford.

Wm. L’Hote observes, on occasion of this publication, that if that good ordinance first enacted by God, Deut. x. 4, for the preservation of the book of the law, by keeping a copy of it in the ark, had been continued, and standard Bibles had been preferred in our cathedral churches, as it has been, since appointed by king Alfred, we might now have shewed the whole book of God, or the entire Old and New Testament in Saxon, which was the English of those times, translated both by that king, and the archbishop of Canterbury, Elfric. Elfric translated the Pentateuch, Joshua, Judges, Ruth, four books of Samuel, entitled in Latin, liber regum, a fifth book called Verba Dierum, or Chronicles, the Plasher, three books of Solomon, viz. Proverbs, Ecclesiastes, the chief of all fongs, the books of Wisdom and Ecclesiasticus, the prophets Isaiah, Jeremiah, Ezekiel, Daniel, the twelve Prophets, Ezra, Job, Tobias, Esther, Judith, and Maccabees. Hence we may conclude, with little doubt, that the books of the New Testament were before translated into Saxon, and commonly read in that language. The Pentateuch, Joshua, and Judges, of Elfric’s translation, are preserved, yeas Usher, in Cotton’s library; where is also a Plasher, with several hymns of the Old and New Testament, with the Apostles’ and Athanasian creed, with an English interlinear translation. The book appears, by a note at the end of it, to have been written in the year 1249. The Anglo-Saxon version, above-mentioned, is divided into sections, over each of which is placed a rubric, directing when it should be read; and this circumstance shows, that at this time the Holy Scriptures were read in the public four to the church in a language which the people understood. Various extracts from this version of the four Gospels were first quoted by Mill (Proleg. § 1462.), who took them from the papers of Marshall. With respect to its antiquity, the learned are not agreed: some have referred it to the sixth or seventh century, since Bede died A. D. 735, but others, more generally, to some part of the eighth century. For an account of the MSS. of the Anglo-Saxon version, see Le Long, Bibl. Sacr. tom. i. p. 422, 423, ed. 1725; and for a complete catalogue of Anglo-Saxon MSS. in general, Wanley’s Appendix to Hickes’s Theaurus, published at Oxford in 1705, folio. Lewis’s Hist. Eng. Transl. of the Bible, p. 5 &c.

Bibles, English. The first English Bible we read of was that translated by J. Wickliffe, about the year 1370, according to some, and 1360, according to others; but never printed, though there are MS. copies of it in several public and private libraries. The MS. of the Old Testament ending with the second book of the Maccabees, in St. John’s college Oxford, is said to have been written by Wickliffe himself. This circumstance, though expressed on the top of the leaf before Genesis, is very doubtful. This translation was made from the Latin Bibles then in common use, not because Wickliffe thought the Latin to be the original, or of the same authority with the Hebrew and Greek text, but because he did not understand those languages well enough, to translate from them. He likewise chose to translate word for word, as had been before done in the Anglo-Saxon translation, without observing the idioms of the several languages, so that this translation is in some places not very intelligible to those who do not understand Latin. Before the invention of printing, transcriptions were obtained with difficulty, and copies were so rare, that the price of one of Wickliffe’s English New Testament appears, from the registry of William Alnwick, bishop of Norwich, in 1429, to have been four marks and forty pence, or 21. 16s. 8d. This translation gave such offence, that a bill was brought into the house of lords, 13 Ric. II. A. D. 1509, for suppressing it. But by the opposition of the duke of Lancaster, the king’s uncle, the bill was thrown out of the house. Wickliffe’s followers were encouraged, by this favourable circumstance, to revive the translation of their master, or rather to make another not so literal and verbal, but more free and accommodated to the sense. The MS. copies of this translation are more rare than those of the other; but they are found in the Bodleian library, and in other libraries both of Oxford and Cambridge. J. de Treviri, vicar of Berkley in Gloucestershire, who died about
about the year 1538, is also said to have translated the whole Bible; but if this be true, it does not appear that any copies of his translation are now remaining. It is probable, that Trench merely translated certain sentences of the Bible, that occur in his writings, and some of which are said to have been painted upon the walls of the chapel in Brinkley castle. Another English translation has been erroneously ascribed to Reginald Pecock, bishop of Chichester, A.D. 1459, in consequence of his having translated some passages of Scripture, cited in his works. Rolla, archdeacon of Hampole in Yorkshire, who translated the Psalms about the year 1532, is supposed by Weaver, in his "Liturary Monuments," p. 151, to have been the translator of the New Testament, which translation was in reality Wickliffe's. Richard Fitz-Ralph, archbishop of Armagh, is said to have translated the Bible into Irish. He died in 1562. Dr. James, relying on a vague declaration of Sir Thomas More, in his account of the confiniments of Arundel, affirms, that the Bible had been twice translated into English; and that one of these translations is much more ancient (some hundred years) than Wickliffe's. But Lewis has shown this to be a mistake. (Hist. Eng. Trans. p. 43.) The zedolts of those times were alarmed by these English translations; and in order to prevent their increase, they urged the necessity of restoring the use of Latin Bibles; and to this purpose Chaucer represents the religions as collecting and debuting them in their libraries, and thus withdrawing them from secular priests and curates, and thus hindering them from preaching the gospel to the people. In 1537, when some secular priests were sent from the diocece of Armagh in Ireland, to study divinity at Oxford, they were obliged soon to return, because they were not able to purchase a Bible. Eneas Sylvius, afterwards pope Pius II. observed in 1548, concerning the Italian priests, that they did not seem to have ever so much as read the New Testament; and Robert Stephens, speaking of the Surbomits, five, that when they are asked in what place of the New Testament anything was written, they replied, that they had read it in Jerom, or in the Decrees, but what the New Testament was they did not know. (See Hody de Bibl. Textibus, p. 464.) Indeed, at that time, if copies of the Bible had been more frequent, the clergy were generally so ignorant as not to be able to read or understand Latin. The Latin Bibles were not only scarce, but much corrupted by the carelessness of transcribers, and the interference of profane critics. In 1547, Wickliffe's followers were become numerous, and copies of his English translation of the New Testament so common, that an English Bible was sold for 25s., whereas the price of a Portuguese, or breviary, was 6 marks. After the art of printing was introduced into England, Latin, Hebrew, and Greek Bibles, and particularly copies of the New Testament became more common; and accordingly a vear of Croydon in Surry, is said to have expressed himself to this purpose, in a sermon preach'd at Paul's Cross about this time: We must not put printing, or printing will root us out."
people; that the distribution of them, as to allowing or denying them, depended on the discretion of their superiors; and that, considering the malignity of the time, an English translation of the Bible would rather occasion the continuance, or increase of errors, than any benefit to their souls. Accordingly, the proclamation announced an intention of, if the present translation were abandoned, at a former reason, to provide that the Holy Scriptures should be given, learned, and catholic persons, translated into the English tongue, if it should then seem convenient. In the mean time, Tindal was busily employed in translating from the Hebrew into the English the five books of Moses, in which he was assisted by Miles Coverdale. But his papers being lost by shipwreck in his voyage to Hamburg, where he designed to print it, a delay occurred, and it was not put to press till the year 1532. It is a small work printed at different presses, and with different types. In the preface he complained, that there was not so much as one in his New Testament, if it lacked a little over its head, but it had been noted, and numbered to the ignorant people for an heresy, which were made to believe, that there were many thousand heresies in it, and that it was so faulty as to be incapable of amendment or correction. In this year he published an answer to Sir Thomas Mor's dialogue, containing his reason for the changes which he had introduced into his translation. The three former editions of Tindal's English New Testament being all fold off, the Dutch booksellers printed a fourth in this year, in a smaller volume and letter. In 1531, Tindal published an English version of the prophet Jonah, with a prologue, full of invectives against the church of Rome. Strype supposes that before his death he finished all the Bible but the Apocalypse, which was translated by Rogers; but it seems more probable that he translated only the historical parts. In 1534, was published a fourth Dutch edition, or the fifth in all, of Tindal's New Testament, in 12mo. In this same year, Tindal printed his own edition of the New Testament in English, which he had diligently revised and corrected; to which is prefixed a prologue; and at the end are the titles of the Old Testament, closing with the following advertisement, "Imprinted at Antwerp, by Marten Empeour, anno M.D. XXXIV." Another edition was published this year, in 1606, and printed in a German letter. Hall says, in his Chronicle, printed during the reign of Henry VIII. by Richard Grafton, the benefactor and friend of Tindal; "William Tindal translated the New Testament, and first put it into print; and he likewise translated the five books of Moses, Joshua, Judicium, Ruth, the books of Kings, and books of Paralipomenon, Nehemiah, and the first of Elisha, and the prophet Jonah; and no more of the Holy Scriptures." Upon his return to Antwerp, in 1531, king Henry VIII. and his council, contrived means to have him seized and imprisoned. After long confinement he was condemned to death by the emperor's decree in an assembly at Augsburg; and in 1536, he was strangled at Villefor, near Brussels, the place of his imprisonment, after which his body was reduced to ashes. He expired, praying repeatedly and earnestly, "Lord, open the king of England's eyes." Several editions of his Testament were printed in the year of his death. Tindal had little or no skill in the Hebrew, and therefore he probably translated the Old Testament from the Latin. The knowledge of languages was in its infancy; nor was our English tongue arrived at that degree of improvement, which it has since attained; it is not, therefore, surprising, that there should be many faults in this translation which need amendment. This, indeed, was a task, not for a single person, but requiring the concurrence of many, in circumstances much more favourable for the execution of it than those of an exile. Nevertheless, although this translation fell from being perfect, few skill, translations, says Dr. Geddes (Prospectus, p. 8.), will be found preferable to it. It is astonishing, says this writer, how little often the language of it is, even at this day; and in point of perplicity, and noble simplicity, propriety of idiom, and purity of style, no English version has yet surpassed it.

Bible, Coverdale's. In 1535 the whole Bible, translated into English, was printed in folio, and dedicated to the king by Miles Coverdale, a man greatly esteemed for piety, knowledge of the Scriptures, and diligent preaching; on account of which qualities king Edward VI. advanced him to the see of Exeter. In his dedication and preface, he observes to this purpose, that, as to the present translation, it was neither his labour nor his desire to have this work put into his hand; but "when others were moved by the Holy Ghost to undertake the cost of it," he was the more bold to engage in the execution of it. Accordingly, therefore, to define him, he set forth this "special" translation, not in contempt of other men's translations, or by way of reproving them, but humbly and faithfully following his interpreters, and that under correction. Of thes, he said, he used five different ones, who had translated the Scriptures not only into Latin, but also into Dutch. He farther declared, that he had neither walked nor altered too much as one word for the maintenance of any manner of sense, but had with a clear conscience purely and faithfully translated out of the foregoing interpreters, having only before his eyes the manifest truth of the Scripture. But because such different translations, he found, were apt to offend weak minds, he added, that there came more understanding and knowledge of the Scripture by these sundry translations, than by all the glosses of sophistical doctors; and he therefore defines, that offence might not be taken, because one translated "scribe," and another "lawyer," one "repeatence," and another "penance," or "amendment." This is the first English Bible allowed by royal authority; and also the first translation of the whole Bible printed in our language. It was called a "special" translation, because it was different from the former English translations; as Lewis has shewn (Hist. Eng. Transl. p. 98,) by comparing it with Tindal's. It is divided into fix tomes, adorned with wooden cuts, and furnished with Scripture references in the margin. The half page has these words: "Printed in the year of our Lorde M.D.XXXV. and finished the fourth day of October." Of this Bible there was another edition in a large 4to, 1556, which was re-published, with a new title, 1553 and third, according to Lewis, were all the editions of it. Coverdale, in his edition of the English Bible, prefixed to every book the contents of the several parts, and not to the particular chapters, which were afterwards the subject; and he likewise omitted all Tindal's prologues and notes. Soon after this Bible was finished, in 1536, lord Cromwell, keeper of the privy-seal, and the king's vicar-general and viceregent in ecclesiastical matters, published injunctions to the clergy by the king's authority, the extent of which was, that every parson, or proprietary of any parish church within this realm, should, before the fast of August, provide a book of the whole Bible, both in Latin and in English, and lay it in the church, for every man that would, to look and read therein; and should discourage no man from reading any part of the Bible either in Latin or English, but rather comfort, exhort, and admonish every man, to read it, as the very word of God, and the spiritual food of a man's soul, &c.

Bible, Matthew's, or Matthew's. In 1537, another edition of the English Bible was printed by Grafton and Whit.
BIBLE.

With their, at Hamburg, as timeilik, or, as other pressed at Milbrow, or Mayeng in Heff, or Marbock in the city of Wittenberg, where Tindal was superintended. It bane the name of Thomas Matthewes, and it was, in sight with the king's most gracious Ffence. Mr. Ward, in an opinion, that, to the end of the book of Chronicles, this name is Tindal's translation; and from there, to the end of prophecy, Coverdale's: but Lewis (1726, p. 327), it is probable that the prophecy of Jonah should be excepted, which Tindal finished in his lifetime, and which is the fame in this edition, and in Coverdale's Bll of 1535. Mr. Ward also observed, that the whole New Testament was Tindal's. Bake says, Rogers translated the Bible into English, from Genesis to the end of Revelation, using none of the Hebrew, Greek, Latin, Greek, and English (i.e. Tindal's) copies. This book contained Tindal's prologue and notes; and, as Hulin says (ibid. ed. 201, it was no other than the translation of Tindal and Coverdale form what altered. The name of Matthewes is allowed to have been fictitious, for reasons of prudence; one of which was, that the memory of Tindal had become odious to many. It may well be admitted, that John Rogers, a learned academic, and the first who was condemned to the flames in the reign of queen Mary, was employed by Cranmer to superintend this edition, and to furnish the few emendations and additions that were thought necessary. This must have been the general practice in 1535, as the preceding sentence preserved by Fox (Act. &c. vol. ii. 1535), is against Rogers, and his alleged Matthewes." Cranmer presented a copy of the book to Cranford, during his interview with the king for the royal licence, that it might be published and used by all. The king's seal was put on the title-page, and a great fire was burnt before the church doors, on the subject of this translation, expressing warm approbation and applause: "I doubt not," says he, "that the holy book, after this day, shall be safe, that it shall appear hereafter what high and excellent service you have done unto God and the king; which shall be most honorable to your cause, that, besides God's reward, you shall obtain perpetual memory for the same within this realm."—"The day you shall leave of at the great day, when all shall be opened and made manifest." In the year 1538, an injunction was published by the vice-chancellor of the kingdom, urging the clergy to provide, before a certain festival, on book of the whole Bible, of the largest volumes in English, and to put up in some convenient place within their churches, where their parishioners might come and read it. A royal declaration was also published, since the estate were to read the same in their several churches, informing the people, that it had pleased the king's majesty to grant and command the Bible, being translated by them, to be principally taught by them, and to be openly in all their private churches. But the creditors were very cool in this affair (fay Fox, ibid. p. 253), and read the king's declaration and letter with such a motion, that fearfully no body could know or, dare say, at the time. Johnson (Hist. Accor. &c. vol. ii. 1534, p. 934) tells, that they do not read the Bible publicly, and that they led their parishioners to believe they read, when they were compelled to re, "to do it they and in the church, and to love their children, the old."

Fox declares (Acts, &c. vol. ii. 516, that the last part of this book much offended Gardiner and his fellow bishops, both for the profane, and especially because there was a table in the book chiefly about the Lord's supper, the marriage of priests, and the.maid, which there was said yet to be found in scripture. Strype, however, says, (Life of Cranmer, p. 649), it was very, careful to see, with what this book was received, not only among these learned, and those who were noted lovers of the reformation, but generally all over England, among all the common people; and with what gladness God's word was read, and what respect there was to the places appointed for reading it. Every one that could, bought the book, and busily read it, or heard it read; and many elderly persons learned to read on purpose. During a vacancy in the fee of Hereford it was visited by Cranmer, who enjoined the clergy to procure, by the 3rd of August, a whole Bible in Latin and English, or, at least, a New Testament in these languages; to study every day one chapter of these books, conferring the Latin and English together, from the beginning to the end; and not to discourage any layman from reading them, but encourage them to it, and to read them for the reformation of their lives and knowledge of their duty. In the course of the year 1538, a quarto edition of the New Testament, in the vulgar Latin and Coverdale's English, bearing the name of Holyhunde, was printed, with the king's licence, by James Newton. Of this another more correct edition was published 1539, in 8vo., and dedicated to Lord Cromwell. In 1538, an edition in 4to. of the New Testament, in English, with Erasmus's Latin translation, was printed, with the king's licence, by R. Dina. In this year it was resolved to reissue Matthewes's bible, and to print a correct edition of it. With this view Grafton went to France, where the workmen were more skillful, and the paper was both better and cheaper than in England, and obtained permission from France. I, at the request of King Henry VIII., to copy his Bible at the expense of the French government, notwithstanding the royal licence, the Inquisition interfered, and issued an order, dated December 17, 1538, preventing the French printers, their English employers, and Coverdale the corrector of the work, and prohibiting them to proceed; and the injunction, consisting of 2500 ovals, was fixed, confused, and condemned to the fire. Some sheets, however, of these books escaped the fire, by the assiance of the person who was appointed to superintend the burning of them; and the English proprietors, who had fled on the first alarm, returned to Paris, as soon as it subsided, and not only recovered some of these copies, but brought with them to London the proofs, types, and printers, and, resuming the work, finished it in the following year.

BIBLE, Cranmer's, or the Great. As soon as the papal power was abolished in England, and the king's supremacy settled by parliament in 1534, Cranmer was very anxious in promoting translations of the Holy Scriptures into the vulgar tongue; well knowing how much the progress of the reformation depended upon this measure. Accordingly, he moved in convocation, that a petition should be presented to the king for leave to procure a new translation of the Bible. This motion was vigorously opposed by Gardiner, bishop of Winchester, and his party; but Cranmer prevailed. The arguments for a new translation, urged by Cranmer, and echoed by one Anne Boleyn, who had then great interest in the king's affections, were so much considered by him, that, notwithstanding the opposition, public and private, on the part of Gardiner and his adherents, Henry gave orders for setting about it immediately. To prevent any revocation of the order, Cranmer, whose mind was intent on introducing a free use of the English Scriptures by faithful and able translatours, proceeded without delay to divide an old English translation of the New Testament into
B I B L E.

Nine or ten parts, which he caused to be transcribed into paper-books, and to be distributed among the most learned bishops, and others; requiring that they would perfectly correct their respective portions, and return them to him at a limited time. When the allained day came, every man sent his appropriate portion to Lambeth, except Stedley, bishop of London. This laudable design of the archbishop failed; but the business was executed by other persons, whom he engaged and encouraged, as we have already stated in the preceding articles. In April 1539, Grafton and Whitchurch printed the Bible (called the "Great Bible") in large folio, "cum privilegio ad imprimitum forum." A beautiful frontispiece, designed by Holbein, and particularly described and exhibited in an engraving by Lewis, p. 122, &c. was prefixed to it: and in the text, those parts of the Latin version, which are not found in the Hebrew or Greek, are inserted in a smaller letter; such, for instance, as the three verses of the 14th psalm, which are the 5th, 6th, and 7th, in the translation of the English liturgy, and the controverted words, 1 John v. 7, 8; and a mark is used to denote a difference of reading between the Hebrew and Chaldee, afterwards explained in a separate note. In this edition Matthew's Bible was revised, and several alterations and corrections were made in the translation, especially in the book of Psalms. Tindal's prologues and notes, and the notes added by others, in the edition of 1537, were wholly omitted. Pointing hands, placed in the margin and in the text, shew the passages on which these notes were to have been written. Johnfon (ubi supra, p. 76.) calls this third edition of the Scriptures the Bible in the large or great volume, ascribes it to the year 1539, and supposes it to have been the same which Grafton obtained leave to print at Paris. He says, that Miles Coverdale compared the translation with the Hebrew, mended it in many places, and was the chief director of the work. Agreeably to this, Coverdale, in a sermon at Paul's cross, defended his translation from some slanderous reports which were then raised against it, confessing "that he himself now saw some faults, which, if he might review the book once again, as he had twice before, he doubted not he should amend; but for any hereby, he was sure that there was none maintained in his translation." This is related by Dr. Fulk, who was one of Coverdale's auditors. A second edition of this Bible seems to have been printed either this or the next year, by Edward Whitchurch; but the copy is imperfect and has no date.

In the course of the year 1539, another Bible was printed by John Byddell, called "Taverner's Bible," from the name of his conductor, Richard Taverner, who was educated at Christchurch, Oxford, patronized by lord Cromwell, and probably encouraged by him to undertake the work, on account of his skill in the Greek tongue. This is neither a bare revision of any English Bible fully delivered, nor a new version; but a kind of intermediate work, being a correction of what is called "Matthew's Bible," many of whose marginal notes are adopted, and many omitted, and others inserted by the editor. It is dedicated to the king. After the patron's death, Taverner was imprisoned in the Tower for this work; but he had the address to reinstate himself in the king's favour. Wood (Hist. et Ant. Univ. Oxon. fol. 1674. 1. l. p. 264.) gives a particular account of Taverner; attributes his imprisonment to the influence of those bishops who were addicted to the Romish religion; and informs us, that his version was read in churches by royal authority. In November 1539, the king, at the intercession of Cranmer, appointed lord Cromwell to take special care that no person, within the realm, should attempt to print any English Bible for five years, but such as should be admitted by lord Cromwell; and affirms this reason for the prohibition, that the Bible should be considered and perused in one translation in order to avoid the manifold inconveniences to which human frailty might be subject from a diversity of translations, and the ill use that might be made of it. In the year 1540, two privileged editions of the Bible, which had been printed in the preceding year, issued from the press of Edward Whitchurch. Lewis mentions three other imperfections of the "Great Bible," which appeared in the course of this year; two printed by Whitchurch, and one by Petry and Redman. Cranmer wrote a preface for the editions of the year 1540, from which we learn the opinions and practice of that time. In May of this year, the curates and parishioners of every parish were required, by royal proclamation, to provide themselves with the Bible of the largest volume before the feast of All Saints, under the penalty of 40l. for every month during which they should be without it. The king charged all ordinaries to enforce the observance of this proclamation; and he apprized the people, that his allowing them the Scriptures in their mother-tongue was not his duty, but an evidence of his goodwill and liberality to them, of which he exHORTed them not to make any ill use. In May 1541, one edition of Cranmer's Bible was finished by Richard Grafton; who, in the November following, completed also another Bible of the largest volume, which was superintended, at the king's command, by Tindal, bishop of Durham, and Heath, bishop of Rochester.

In consequence of the king's settled judgment, "that his subjects should be nurtured in Christ by reading the Scriptures," he again, on the 7th of May, published a brief, or decree, for setting up the Bible of the great volume in every parish church throughout England. However, this decree appears to have been very partially and reluctantly observed; and the bishops were charged, by a writer in 1546, with attempting to suppress the Bible, under pretence of preparing a version of it for publication within seven years. After the death of Cromwell in 1540, the bishops inclined to popery gained strength; and the English translation was represented to the king as very erroneous and heretical, and destructive of the harmony and peace of the kingdom. In the convocation, assembled in Feb. 1542, the archbishop, in the king's name, required the bishops and clergy to revise the translation of the New Testament, which, for that purpose, was divided into fourteen parts, and portioned out to fifteen bishops; the Apocalypse, on account of its difficulty, being assigned to two. Gardiner clogged this business with embarrasing instructions; and Cranmer clearly perceiving the resolution of the bishops to defeat the proposed translation, procured the king's consent to refer the matter to the two universities, against which the bishops protested; but the archbishop declared his purpose to adhere to the will of the king his master. With this, the contest of the bishops terminated; and the convocation was soon after dissolved. The Romish party prevailed also in parliament, which enacted a law that condemned and abolished Tindal's translation, and allowed other translations to remain in force, under certain restrictions. After the paffing of this act, Grafton, the king's printer, was imprisoned; nor was he released without giving a bond of 300l. neither to print nor sell any more English Bibles, till the king and the clergy should agree on a translation. In 1544, the Penticrouch was printed by John Day and William Seres; and in 1546, the king prohibited by proclamation laying and reading Wickliff's, Tindal's, and Coverdale's translations, and forbade the use of any other than what was allowed by parliament.
BIBLE.

From the history of English translations, during the reign of Henry VIII. we learn, that the friends to the reformations conducted themselves with zeal and prudence in the great work of introducing and improving English translations of the Bible; that they encountered many difficulties from the dangerous inconstancy of a despotic prince, and from the invidious prejudices of a strong Romish party; and that the English scriptures were sought after and read with avidity by the bulk of the people.

Upon the accession of Edward VI. the severe Stat. 34 & 35 Henry VIII. c. 1, was repealed, and a royal injunction was published, that not only the whole English Bible should be placed in churches, but also the paraphrase of Erasmus in English to the end of the four Evangelists. It was likewise ordered by this injunction, that every parson, vicar, curate, &c. under the degree of a bachelor of divinity, should publish the New Testament, both in Latin and English, with the paraphrase of Erasmus upon it, and that the bishops, &c. in their visitations and excommunications should examine them, how they had professed in the study of the Holy Scriptures. It was also ordered, that the epistle and gospel of the mass should be read in English; and that on every Sunday and holiday, one chapter of the New Testament in English should be read and distinctly read at matins, and one chapter of the Old Testament at evensong. But, in the year 1549, when the book of common prayer, &c. was published, what nearly resembles our present custom was enjoined, that after reading the Psalms in order, morning and evening prayer, two lessons, the first from the Old Testament, and the second from the New Testament, should be read distinctly with a loud voice. During the course of this reign that is, in less than 7 years and 6 months, eleven impressions of the whole English Bible were published, and 6th of the English New Testament, before an English translation of the whole New Testament, paraphrased by Erasmus. The Bibles were reprinted, according to the preceding editions, by Bishop Coverdale, Matthew's, Cranmer's, and Taverner's; that is, with a different text, and different notes. But it is doubted by the writer of the preface to King James's translation, whether there were any translation, or correction of a translation, in the course of this reign.

In 1562, the "Great Bible," viz. that of Coverdale's translation, that had been printed at the time of Henry VIII. and also in the time of King Edward, was reviewed by archbishop Parker, and reprinted for the use of the church; and this was to serve till the end of his reign, by his grace was ready for publication. See Bible p. 6. Bible, Geneva. Many of the principal reformers having been driven to Geneva, during the persecutions of Queen Mary's reign, they published, in 1557, an English New Testament, printed by Conrad Badius; the first in our language which contained the divisions of verses by numerical figures, after the manner of the Greek Testament, which had been published by Robert Stephens in 1551. R. Stephens indeed, published his book in the margin; whereas the Geneva editors prefixed them at the beginning of minute subdivisions with breaks, after our present manner. When Queen Elizabeth passed through London from the Tower to her coronation, a page was entitled in Cheshunt, representing Time coming out of the East, and taking a person clothed in white silk, who represented Truth, his church, Truth had the English Bible in her hand, on which was written "Verbum verum." Truth addressed the queen, and presented her with the book. She kissed it, held it in her hands, laid it on her breast, greatly thanked the king for their present, and added, that she would often and diligently read it. Upon a royal visitation in 1559, the Bible, and Erasmus's paraphrase, were referred to churches; and articles of enquiry were exhibited whether the clergy discouraged any from reading any part of the Scriptures. "Ministers were also enjoined to read every day one chapter of the Bible at least; and all who were admitted readers in the church were daily to read one chapter at least of the Old Testament, and another of the New, with good admonition, to the encrease of their knowledge."

During this year, the exiles at Geneva published the book of Psalms in English, with marginal notes, and with a dedication to the queen, dated February 10. In 1560, the whole Bible in 4to. was printed at Geneva by Rowland Hare; some of the refugees from England continuing in that city for this purpose. The translators were bishop Coverdale, Anthony Gilby, William Whittingham, Christopher Weedman, Thomas Sampson, and Thomas Cole; to whom some add John Knox, John Beilking, and John Pullum; all zealous Calvinists, both in doctrine and discipline; but the chief and the most learned of them were the three last. Prefacing to observe the sense, and to adhere as much as possible to the words of the original, and in many places to preserve the Hebrew phonoology; after the labour and industry of two years and more, day and night, they finished their translation, and published it; with an epistle dedicatory to the queen, and another, by way of prayer, to their brethren of England, Scotland, and Ireland. Besides the translation, the editors of the Geneva Bible noted in the margin the diversities of speech and reading; especially according to the Hebrew; they inserted in the text, with another kind of letter, every word that seemed to be necessary for explaining any particular sentence; in the division of the verses, they followed the Hebrew examples, and added the number to each verse; they also noted the principal matters, and the arguments, both for each book and each chapter; they set over the head of every page some remarkable word or sentence, for helping the memory; they introduced brief annotations for determining the text, and explaining obscure words; they set forth with figures certain places in the books of Mosaic, of the Kings, and Ezekiel, which could not be made intelligible by any other description; they added maps of divers places and countries, mentioned in the Old and New Testament; and they annexed two tables, one for the interpretation of Hebrew names, and the other containing all the chief matter of the whole Bible. Of this translation, there were above 30 editions in folio, 4to., or 8vo., mostly printed by the queen's and king's printer, from the year 1560 to 1616. Editions of it were likewise printed at Geneva, Edinburgh, and Amsterdam. To some editions of the Geneva Bible, e.g. to those of 1599 and of 1611, is subjoined Beza's translation of the New Testament, engrossed by L. Tompson. (See RB. Bible.) Dr. Geddes (Gen. Anwser, &c. p. 4) gives an honourable testimony to the Geneva translation; and hesitates not in declaring, that he thinks it in general better than that of King James's translators.

BIBLE, bishop's. In the year 1568, the Bible, propounded by archbishop Parker three years before, was completed. This edition, according to Le Long, was undertaken by royal command; a d is mentioned by Strype, to the honour of the archbishop, that he had resolution to perform what Cranmer, as opposed by the bishops of his days, had in vain endeavoured to accomplish. In this performance, invariable portions of the Bible, at least 15 in number, were allotted to select men of learning and abilities, appointed, as Fuller says, by the queen's command; and, accordingly, at the conclusion of each part, the editor of 1568 has the initial letters of each man's name to the end of the first epistle to the Corinthians; e.g. at the end of the Pentateuch.

W.F.
W.E. for William, bishop of Exeter, whose allotment ended there; at the end of Ruth, R. M. for Richard Menvennis, or bishop of St. David's, to whom pertained the second allotment; and so of the rest. But it still remains uncertain, who, and whether one or more, revived the rest of the N.T. Eight of the persons employed were bishops; whence the book was called the "Bishop's Bible," and the "Great English Bible." The archbishop employed other critics to compare this Bible with the original languages, and with the former translations; one of whom was Laurence, a man famous in those times for his knowledge of Greek, whose conjectures the Bishop's Bible followed exactly. His grace also sent instructions concerning the method which his translators were to observe; and recommended the addition of some short marginal notes, for the illustration or correction of the text. But the particulars of those instructions are not known. The archbishop, however, directed, reviewed, and finifhed the whole; which was printed and published in 1568, in a large folio size, and with a beautiful English letter, on royal paper, and embellished with several cuts of the most remarkable things in the O. and N. T. and Apocrypha, maps cut in wood, and other draughts and engravings on copper. It has many marginal references and notes, and many useful tables. It has numerous insertions between brackets, and in a smaller character; which are equivalent to the italics afterwards used by James's translators. Dr. Geddes is of opinion, (Letter to the bishop of London, p. 32.) that italic supplements were first used by Arias Montanus, who died in 1598. The several additions from the vulgar Latin, inserted in the "Great Bible," are omitted; and verse 7 of 1 John v. which was before distinguished by its being printed in a different letter, is here printed without any distinction; and the chapters are divided into verses. In the following year, 1569, it was again published in large 8vo. for the use of private families. This Bible was reprinted in 1572, in large folio, with several corrections and amendments, and several prolegomena; this is called "Matthew Parker's Bible." With regard to this Bible, Lewis (p. 61.) observes, that the editions of it are mostly in folio and 4to., and that he never heard but of one in 8vo.; for which he supposes to be the reason, that it was principally designed for the use of churches. In the convocation of the province of Canterbury, which met in April, 1571, a canon was made, enjoining the churchwardens to fee, that the Holy Bible be in every church in the largest volumes, if convenient; and it was likewise ordered, that every archbishop and bishop, every dean and chief residientary, and every archdeacon, should have one of these Bibles in their cathedrals and families. This translation was used in the churches for forty years; though the Geneva Bible was more read in private houses. For king James's opinion of it, see King James's Bible.

Bible. Rheimsh. After the translation of the Bible by the bishops, two other private versions had been made of the New Testament; the first by Laur. Tomson, under-secretary to sir Francis Walsingham, made from Beza's Latin edition, together with the notes of Beza, published in 1576, in 8vo. and afterwards in 1599, varying very little from the Geneva Bible; the second, by the papists at Rheims, in 1582, in 4to., called the "Rheims Bible," or "Rheims Testament." These finding it impossible to keep the people from having the scriptures in the vulgar tongue, resolved to give a version of their own, as favourable to their cause as might be. It was printed on a large paper, with a fair letter and margin. One complaint against it was, its being translated from the vulgate Latin, and retaining a multitude of Hebrew and Greek words untranslated, for want, as the editors express it, of proper and adequate terms in the English to render them by; as the words affect, translate, rational, hypocrite, profane, rejoice, etc. whence Fuller called it, in his quaint manner, "a translation which needed to be transalated," and Fuller says that "by all means they laboured to suppress the light of truth, under one pretence or other." They added large annotations, to fly, as they say, the ridiculous reader, in most places pertaining to the controversies of those times, both the heretical corruptions, and false deductions, and also the apostolic traditions, the expostulations of the holy fathers, the decrees of the Catholic church, and most ancient councils. Some have said, that it was printed in a most costly manner, in order to put it out of the power of common people to purchase it; but if any of the laity secretly procured one of these Rheims Testaments, he durst not own that he had read it, without previously obtaining from his superior a licence for this purpose. Many of the copies were seized by the queen's searchers, and confiscated; and Th. Cartwright was solicited by secretary Walsingham to refute it; but after a good progress made therein, the archbishop Whitgift prohibited his further proceedings therein, as judging it improper the doctrine of the church of England should be committed to the defence of a puritan, and appointed Dr. Fulke in his place, who refuted the Rheims with great spirit and learning. Cartwright's refutation was also afterwards published in 1618. under archbishop Abbot, together with the Rheims translation. This procedure was much more agreeable to the true spirit of Protestantism, than the act of seizing and burning the copies; "argument being the only weapon (say the truly excellent primate Newcome), which should be wielded to defend Christianity, or any mode of professing it." Other editions were printed at Antwerp, in 1600, and in 12mo. at the same place, in 1630, and at Paris, in 4to. in 1653. Within 30 years after their New Testament, the Roman Catholics published a translation of the Old, at Doway, hence called the "Downay Bible," in two 4to. volumes, the former in 1609, the other in 1610, from the Vulgate, with annotations. It is said that the translators were William Allyn, afterwards cardinal, Gregory Martin, and Richard Brilow; and that the annotator was Thomas Worthington. But some (Le Long. 418.) ascribe the version of the New Testament chiefly to William Raynold.

Bible, King James's. The last English Bible was that which proceeded from the Hampton-court conference, in 1605, where many exceptions being made to the Bishop's Bible, king James gave order for a new one; not as the preface expresses it, for a translation altogether new, nor yet to make of a bad one a good one, but to make a good one better, or of many good one best. On the second day of this conference, Dr. Reynolds, the speaker of the Puritans, moved his majesty, that a new translation of the Bible might be undertaken; because those which were allowed in the reigns of Henry VIII. and Edward VI. were corrupt, and such versions as were extant were not answerable to the truth of the original. It has been observed by learned men with regard to the translators in the reign of Henry VIII., that they followed Erasmus and Sebastian Mueller too closely; of the Geneva version, that it was formed too faithfully on the model of Beza; and of the Bishop's Bible, that it was sufficiently exact, but full of errors, because its conductors departed from the Hebrew, and trod too exactly in the footsteps of the Greek. In reply to Dr. Reynolds, the king said, that he had never yet seen a Bible well translated into English; though he considered the Geneva translations as the work. On the suggestion of Bancroft, bishop of London, he forbade marginal notes; some of the Geneva
The two from the Cambridge companies were Mr. John
Bois, fellow of St. John's college, and Mr. Andrew Downes,
professor of Greek. These daily met their fellow-labourers in
Stationers' hall, London; where, in nine months, they
completed their task, and received, each of them, by the
work 3s. from the Company of Stationers, whereas, "be-
fore they had nothing." The whole was, at first, reviewed
by Bilton, bishop of Winchewell, and Dr. Myles Smyth, after-
wards bishop of Gloucester, who prefixed arguments to the
several books; and the latter was ordered to write the pre-
face. This edition of the Bible, with the preface and a dedi-
cation to the king, was first published in London, in the
year 1611; and is commonly called "King James's Bible."
Several editions of it were published in 4to. and 8vo.;
and particularly one by R. Barker, in 1613. In some
editions of this Bible, between 1638 and 1685, an alteration
is introduced in Acts vi. 3, where, instead of "We may ap-
point," is inserted "Ye may appoint," which has been
charged on the Independents. But as the first Bible in
which it was observed is that printed at Cambridge by Buck
and Daniel, in 1638, it is probably an error of the press,
without any design to favour any particular party. In 1660,
a beautiful edition of this Bible was folio, with chorographical
cuts, engraved by Ogilby, was printed at Cambridge, by
John Field; and another edition was printed in 8vo. at
Amsterdam, in 1664, by John Cume, a leader of the Eng-
lish Brownists, with marginal notes, showing Scripture to
be the best interpreter of Scripture. The editor has pre-
pared a preface; and the Apocrypha is omitted. A very fine
edition of this Bible was published in a large folio, in 1701,
under the direction of Dr. Penfold, archbishop of Canter-
bury, with chronological dates, and an index, by bishop Lloyd,
and tables of scripture measures by bishop Cumberland; and
this edition abounds with typographical errors. After this tra-
dition, all the other versions dropped, and fell into disrepe,
except the Epistles and Gospels in the Common Prayer Book,
which were still continued, according to the Bishop's transla-
tion, till the alteration of the liturgy in 1661, and the Psalms
and Hymns, which go to this day as in the old version.

About the time when King James re-issued the trau-
slation of the Bible, another translation was finished by Mr.
Ambrose Usher, elder brother of the learned priests of
Armagh of the same name. It was never printed; but is
preserved in MS. in 3 vols. 4to. in the library of Trinity
college at Dublin. In 1764, Mr. Anthony Purver published
We have also had several translations of the New Testa-
ment, (see Testament) and of particular books and parts of the
Old and New Testament, the principal of which will be
noticed in their proper places.

Learned persons have entertained very different opinions
concerning the accuracy and value of the translation, made
by order of King James, and now in common use. Bishop New-
castle, the late much respected prince of Ireland, has given an
abstract of these opinions. Celsius recommends it as the "best
translation in the world." The committee for religion in the
time of Cromwell, A.D. 1666, whilst they pretended to dif-
serve some parts, let it be useful to the "best extract;" Welb
in his "Prolegomena," boldly gives it such; and, in his "Symposia, &c." says, that "in this royal
textual and historical learning and detail in the original
language, and of unusual accuracy and judg
ment," in the "Bible, the (Latin)," A.D. 1723, it is observed, that "it was the way by general
consent and approbation, without the intervention of a
jury to enforce it. A rare argument that it is generally
accepted the Bible we have; though it has many con-
trivances."
BIBLE.

considerable faults; and very much needs another review," Dr. Wells, in his general preface to the O. T. professes to correct it, "either where it does not give the true sense of the original, or where the true sense is not well expressed," according to the modern idiom. The author of an "Essay for a New Translation of the Bible, &c." 1772, after speaking in praise of this version, recommends the attempt to give a more exact translation than any that has hitherto appeared; and he adds, "it were indeed to be wished, that those who are, in power, did employ men of true learning, and solid piety, free from bigotry and blind zeal, in so noble and necessary a work." "Innumerable instances," says Blackwall in his "Sacred Chaff, &c." might be made (in the English Bible) of faulty translations of the divine original; which either weaken its sense, or deform and tarnish the beauty of its language." He also observs, that "a new translation can give no offence to people of sound judgment and conformation; because every body, conversant in these matters, and unprejudiced, must acknowledge, that there was no occasion to change the old version into the present, than to change the present into a new one." "Thus an accurate and admirable translation, proved and supported by sound criticism, would quasi and silence most of the objections of pert and profane cavilers, which chie fly proceed from their want of penetration and discernment of the connection of the argument, and their ignorance of the manner and phrase, of the divine writings. It would likewise remove the scrupules of many pious and conscientious Christians."—"A new division of the sacred books into chapters, sections, and periods, might be so contrived and managed as to make a new edition very commodious and beautiful; which would overbalance all inconveniences which superfluous and useless parts might arise from alterations, and make a victorious and freed way to the honour, and firm approbation, of the world." There is hardly one chapter in the N. T., says this author, that is not unfairly divided, in consequence of which, the connection and meaning of particular passages are rendered confused and obscure; whil st the style is materially injured. "It is, with pleasure and just generation," he continues, "to the memory of our learned and judicious translators, that I acknowledge their version in the main, to be faithful, clear, and solid. But no man can be so superfluous as devoted to them, but must own that a considerable number of passages are weakly and imperfectly, and not a few falsely, rendered. And no wonder; for since their time there have been great improvements in the knowledge of antiquity, and advancements in critical learning, &c." "If ever!" (says Dr. Waterland, Scripture Vindicated), "a proper time should come for revising and correcting our last English translation, which, though a very good one, and upon the whole scarce inferior to any, yet is undoubtedly capable of very great improvements, &c." Doddridge, Wellesley, Wynne, Pinkington, Purver, Wordsley, Piddley, &c. &c. express themselves to the same purpose. "To confirm and illustrate the holy scriptures," says the eminent ingenious and learned bishop Lowth (Vititation Sermon at Durham, 1758), "to evidence their truth, to shew their confidence, to explain their meaning, to make them more generally known and studied, more easily and perfectly understood by all; to remove the difficulties, that discourage the honest endeavours of the unlearned, and provoke the malicious cavils of the half-learned: this is the most worthy object that can engage our attention; the most important end to which our labours in the search of truth can be directed. And here I cannot but mention that nothing would more effectually conduce to this end, than the exhibiting of the holy scriptures themselves to the people in a more advantageous and just light, by an accu-
strongly influenced in matters of acknowledged importance, by corrupt readings or mistranslations of a few texts.

It has again been objected, that a new translation is an extremely dangerous attempt; that nothing would more immediately tend to shake the faith of the establishment; and that it would be imprudent to meddle with minds of very devout and well-meaning people, by an innovation which they could not help considering as an insult on hears.
regarded, neither the reformation, nor the revolution, could have taken place; and we should have been still subject to Roman superstition, and to despotic power. It is certainly not less the part of wisdom and meekness to give up what is wrong, than respectfully to maintain what is right.

It has been further argued, that the present translation derives an advantage from its antiquity, greatly superior to any which could arise from a correction of its inaccuracies. Hence it would follow, that the versions of Tindal, Wickliffe, and Jerome, ride in excellence. But no age or prescription can authorize error; and it is obstinately to defend in any version, however ancient or venerable, what cannot be rationally defended. Although it be defirable that the genuine ancient text should prevail; in an English translation of the Bible, a translation may nevertheless become too antiquated; and in fact our own Bible retains words and forms of such remote use, that some of them are not understood, even by intelligent readers, and many of them are rather harsh and uncouth, than venerable and majestic.

But it has been said, that the present translation ought to be retained in our churches, on account of its intrinsic beauty and excellence. The language, though simple and natural, is rich and expressive. Even in the literal translation of the Psalms, there are passages exquisitely beautiful and irresistibly transporting; and where the sense is not clear, nor the connection of ideas obvious at first sight, the mind is fascinated, and the ear ravished with the powerful yet unaffected charms of the style. These beauties, it is alleged, on the other hand, are found, in an equal, or partly in a superior degree, in our first version; and must be more or less found in every version of the Hebrew Scriptures, that is not a mere paraphrase.

King James's translators found it in their prototype; the dictum and paraphraseology they borrowed from their predecessors in translation. What is beautiful, what is excellent, what is melodious and ravishing in the present version, should unquestionably be retained by all future translators; but is there any reason for retaining its corruptions, its mistranslations, its obscurities, and its other acknowledged imperfections?

The correcting translators, it will be again urged, differ among themselves. Differences must necessarily arise among interpreters of the Scriptures. King James's translators often disagreed as individuals; and adopted in a body what seemed to be most agreeable to the found rules of interpretation. Let a like number of able judges decide, on the same principles, between biblical critics of the present age. But the new translators recede too far from the common version.

This, however, in a new version, is not necessary, nor would it be proper; whilst they recede from its errors and imperfections, they should retain its general dictum and manner, nor ever allow themselves to deviate from it without a satisfactory reason.

It has been further intimated, by those who are averse from a new version, that such as wish for additional information may have recourse to those authors, who have explained obscure and erroneous passages. But have all Christians, who meet with difficulties, time and ability to consult these writers? Or if they had, is it in any respect decent or fit that the public Scriptures, confided to want assurance, should be suffered to depend for support on these extraneous props? The national Bible is the great record of our religion; it is this which the Deil attacks, and this must supply us with our defence.

The objectors proceed with obtaining, that no translation, even of a single book, has yet appeared, preferable on the whole, to the received one. Let it be considered, however, that the attempts of individuals necessarily labour under great comparative imperfections; and yet these should be promoted by the natural patrons of sacred learning, and parts of the Scriptures should be aligned to such as are well qualified for the honourable task of translating and explaining them; because these private versions and expositions will form a most useful ground-work for a revised version of the whole Bible by public authority.

After all, it will be said by many, who are convinced that our present Bible should be revised, that this is not a proper time for the undertaking; and that we should wait till, by the further increase of light, and progress of improvement, we shall be able to carry the work to a greater degree of perfection, and, if feasible, make future revisions unnecessary. This argument may be always urged; because religious knowledge will increase in proportion as human learning improves, and as new light is obtained from versions and MSS., that are already known, and that may yet be discovered, duly examined, and compared. "But shall we, in the mean time, prolong the difficulties of the Christian, and the fancied triumph of the Infidel? The mistakes already discovered are well worthy of correction. Should others of importance be brought to light in the next or subsequent generation, let them also be corrected. The true rule in this case is, to revise as often as revision is necessary. To defer this longer is an injury to religion; to put it off till it can be done in such a way as to preclude the necessity of future revisions, is in fact to put it off for ever." "The taste of the age for sound logic, found criticism, and found philology, has acquired sufficient strength to triumph over their oppressors."

In favour of an improved version of the Bible, for national use, it has been argued, that such a translation becomes necessary by the unavoidable fluctuation of languages. The style of Wickliffe's version, and of Tindal's, very widely differs in the course of 153 years; and the English language underwent also a great change between the publication of Tindal's Bible and that of King James's, in an interval of 81 years. Since the year 1611, when the present version first appeared, our language has acquired a great degree of copiousnesses, of elegance, of accuracy, and perhaps of stability. Many words and phrases which occur in the revised version become unintelligible to the generality of readers; and many, which are intelligible, are so antiquated and debased, as to excite disgust among the serious, and contempt and derision among the lightlings. Pilkington (Remarks on several passages of Scripture, Camb. 8vo. 1759); Purver (Translation of the Bible); Dr. Synnods (Observations on the expediency of revising the present English version, &c. Camb. 4to. 1789); Dr. Wells (Pref. to Comment on the O. T.); Dr. Campbell (Four Gospels translated from the Greek, 4to. Lond. 1789); and Dr. Geddes (Prospectus) have selected many words and phrases that require correction, and that admit of obvious improvement. The style of a biblical version is a matter of importance; both as it invites the perusal of a book which the Spirit of God inspired, and as it influences the national language and taste. Whatever merit be allowed to the version now in use, with regard both to its interpretations as well as its style, it must be allowed that, since the period in which it was executed, the biblical apparatus has been much enriched by the publications of polyglots; of the Samaritan pentateuch; of ancient and modern versions; of lexicons, concordances, critical dissertations, and sermons; books of eastern travels; disquisitions on the geography, customs, and natural history of the East; accurate tables of chronology, coins, weights, and measures. Many Hebrew and Samaritan MSS.; many early printed editions of the Hebrew Scriptures, have been collated by Kennicott and
and De Rossi; the eastern languages, which have so close an affinity with the Hebrew, have been industriously cultivated at home and abroad; the Masoretic punctuation is now ranked among useful aids, but no longer implicitly followed; and the Hebrew text itself is generally allowed to be corrupt in many places, and therefore capable of concordance by the same methods which are used in restoring the integrity of all other ancient books. With such an accession of helps, with light poured in from every part of the literary world, with such important principles, and with the advancement of critical skill to apply them, it is natural to conclude that many mistakes and absurdities may be removed from the present version, and that the precision, beauty, and emphasis of the original, may be communicated to it in various places. The present date of the Hebrew text in its reference to a new version of the O. T. has been already presented in the commencement of this article; and that of the text of the New Testament will be the subject of a future article; see Testament.

Dr. Newcome, in his "Attempt towards an improved version, &c. of the Minor Prophets," published in 1785, proposed a variety of rules for conducting a new translation of the Bible. These have been face corrected and enlarged (ubi infra); and in order to render the article, the subject of which is highly important and interesting, as complete and as satisfactory to biblical readers as our limits will allow, we shall here subjoin the most material parts of them. The learned prelate proposes, in the first place, that a plan, resembling the regulations preferred to king James's translators, should be deliberately adjusted by a large committee of judicious and learned men. A more select committee, well acquainted with the original tongues, in which the Bible is written, should then be appointed by proper authority, who should invite every scholar to contribute his remarks; who should have their respective parts assigned them; and who, after the performance of their allotted tasks, should amicably unite in advancing the whole to its proper degree of perfection. The first of his rules is, that a translation of the Bible should express every word in the original by a literal, verbal, or close rendering, where the English idiom admits of it. This rule admits of some few exceptions; but it excludes unnecessary deviation from the grammatical form of the original words; unnecessary paraphrase, which obscures the force of the original, digresses its matter, and sometimes forms a wrong idea; tautological renderings; and such as are defective. The second rule directs the translator, where the English idiom requires a paraphrase, to endeavour so to form it as to comprehend the original word or phrase; and to express the supplemental part in Italian, except where hardship of language results from the adoption of this method. The third rule recommends, in cases where a verbal translation cannot thus be interwoven, the substitution of an equivalent to it, and which implies the rendering in the original, but the idiom in the text should be literally rendered in the margin. By observing the second and third rules, the utmost fidelity to the original will be given, which is the primary duty of a biblical translator; the customs and manners of the eastern nations will be explained; the peculiar genius of the original language will be exhibited; and the reader unfamilied in them will be enabled to interpret for himself. The fourth rule requires, that the language of a biblical translation should be pure, or comparable to the rules of grammar. The fifth rule directs, that the propriety should be a prevailing character in the words and phrases of a biblical translation; that is, they should have the nature of rule and the introduction given to them should be warranted by the best speakers and writers. In order to preserve the venerable turn of our present version, some few exceptions may be allowed under this general rule. The sixth rule enjoins the translators to retain the simplicity of the present version; for which purpose they should exclude foreign words, and the pomp and elegance of modernized diction. The seventh rule inculcates peripetia. The eighth rule recommends the same original word, and its derivatives, according to the different leading senses, and also the same phrase, to be respectively translated by the same corresponding English word or phrase; except where a distinct representation of a general idea, or the nature of the English language, or the avoiding of an ambiguity, or elegance of style, or harmony of sound, requires a different mode of expression. In conformity to this rule, it is proposed, that translators should previously agree on the rendering of certain words and phrases. Accordingly, the original word Elohim, which expresses the self-existence of the deity, and which, so far from being barbarous, is a grand and magnificent term, should be retained:—that it should be considered, by the help of convenient renderings, whether the same word can always be rendered in the same manner; and that when an English word fits every place, it should invariably be used:—that if the original word cannot always admit of the same rendering, of which many examples occur, the different renderings may be reduced to as few as possible, and those the fittest which the English language affords—that different words, which have the same, or nearly the same sense, should be distinguished in translating them, when the English tongue furnishes distinct and proper terms:—and that parallel passages should be rendered in the same words. The ninth rule requires that the collocation of words should never be harsh and unnatural to an English ear. The tenth rule recommends to translators of the Bible a suitable degree of beauty and elegance. This beauty, in its prevailing character, must be easy and natural, simple and severe; free from laboured ornament and artificial variety of phrase. The style, like that of the original, must be raised in the poetical parts, but not inflated, and plain in the historical parts, but not abject. "Let notings," says Dr. Symonds (ubi supra) "be admitted into the text, which we cannot read with pleasure, as well as with advantage." In the eleventh rule it is required, that dignity should characterize a version of the Bible. The opposite extreme results from the introduction of debased and offensive terms or phrases: of which fome are degenerated by familiar use, others are colloquial and vulgar Anglicisms; and modern paraphrase, as such, is undignified in a translation of the Bible. The twelfth rule prefers energy as another characteristic of a biblical translation. This quality is obtained, in a great degree, by simplicity and propriety in the words that are selected to represent the peculiar notes conveyed by the sacred writers, and by expressing the ideas contained in the original with due conciseness. The expressive style of the Scriptures is ennobled by euphony and paraphrase; but does not majestically more disdain the defect of ornament, than the excess of it. A version of the Bible will derive much force by retaining those Hebrews which the English language only admits, or to which an English ear is now at home. Obscure Hebrews, such as weaken the figurative of the original, and those which pretending its meaning, should be avoided. In the thirteenth rule it is recommended to continue the old eccentric terms, such as substantia, mystagogia, et cetera, as long as they are part of our theological language, and of which explanations perpetually occur. The fourteenth is, in general, to be retained. By observing this rule, the genius of a language, and the nature and customs of a country, will often appear;
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Rule fifteenth. Proper names should remain as they are now written in those places where they are most correctly represented. Rule sixteenth. The best known geographical terms should be inserted in the text; and those of the original in the margin; e.g. Syria, marg. Aram; Ethiopia, marg. Cuf. Rule fourteenth. The language, sense, and punctuation of our present version should be retained, unless when a sufficient reason can be assigned for departing from them.

Rule eighteenth. The critical sense of passages should be considered, and not the opinions of any denomination of Christians whatever; so that the translators should be philosophers and not controversy. Rule nineteenth. Passages already admitted into the common version, but which are allowed to be marginal glosses, or about the authenticity of which critics have reason to be doubtful, should be placed in the text between brackets. Rule twentieth. In the editions of the Bible, the poetical parts should be divided into lines answering to the metre of the original; or some other method should be used to distinguish them from prose. But if it should be thought advisable to exclude the poetical distribution from our Bibles, and confine it to the prolixities of the scholar, some proper mark of distinction for metrical prose, as the Hebrew Rehbiang or two horizontal points placed over a word, may be admitted into the authorized impressions of the Old Testament; or, at least, the contents prefixed may advertise the reader of the passages generally allowed to assume the tone and form of poetry. Rule twenty-first. Of dark passages, which exhibit no meaning as they stand in our present version, an intelligible rendering should be made on the principles of found criticism. Under this head of found criticism, Neechome includes that which is conjectural, the sober use of which he frequently recommends. But it admits of doubt, whether conjecture can ever be authorized in a translation which is intended for general use; for if it be exercised on flight occasions, it must be in some degree superficial; if on material ones, it must ever be indecisive. The learned prelate, however, lays down the following canons for this kind of criticism. Never suppose that the text is corrupted without the most cogent and convincing reasons. Never have recourse to conjectural criticism, until every other resource has been tried and exhausted. Let all corrections be consistent with the text, and with one another. Infer no correction, however plausible or even certain, in the text, without warning the reader, and disingenuously by it a proper note. For other instructions, more immediately designed for the editor of such a new version, we refer to the author himself; as well as to his appendix, for a list of the various editions of the Bible, together with an account of the libraries public or private, in which they are to be found. Another more complete list of this kind is prefixed to bishop Wilton's Bible. See Lewis's Translations of the Bible, 8vo. 1739. Johnson's Historical Account of the several English translations of the Bible, in bishop Watton's Collection of Theological tracts, vol. iii. p. 60—100. Newcome's Historical View of the English Biblical Translations, &c. 8vo. Dublin, 1792.

BIBLE, Welsh. There was a Welsh translation of the Bible made from the original in the time of queen Elizabeth, in consequence of a bill brought into the house of commons for this purpose in 1563. The act 5 Eliz. c. 28. reciting, that in Wales the people were popishly inclined, and very ignorant, put the direction of this work into the hands of the bishops of Hereford, St. David, Bangor, Landaff, and St. Asaph, who were to inspect the translation, and take care that such a number should be printed as would provide every cathedral, collegiate, and paroch-church, and chapel of cafe, within their respective dioceses, where Welch was commonly spoken, with one copy. It was printed in folio, in 1568. Another version, which is the standard translation for it is language, was printed in 1626. It is called Parry's Bible. An impression of this was printed in 1660, called Bishop Lloyd's Bible. There were in folio. The first octavo impression of the Welsh Bible was made in 1630.

BIBLES, Irish. The New Testament having been translated into Irish by William Danii, archbishop of Tuam, Bedell, who was advanced to the see of Kilmore and Ardagh, in 1629, first precured the Old Testament to be translated by one King; but the translator being ignorant of the original languages, and having done it from the English, the bishop himself revised and compared it with the Hebrew, the Septuagint, and the Italian version of Dioscati. He supported Mr. King to the utmost of his ability, whilst he was engaged in this work; and when the translation was finished, he would have printed it in his own house, and at his own charge, if the troubles in Ireland had not prevented it. The execution of his benevolent design was also impeded in consequence of the notice that was given of it to the lord lieutenant and the archbishop of Canterbury, who thought it disgraceful for a nation to have a Bible published, which had been translated by such a despicable person as King. However, the translation escaped the hands of the rebels, and it was afterwards, viz. in 1685, printed at the expense of the Hon. Robert Boyle.

BIBLES, Gaelic. The Bible was translated and published by the Society in Scotland for promoting Christian knowledge, in the Gaelic language, for the use of their schools, and of the people in the Highlands, at different periods, and in detached portions, as the funds of the society allowed. In 1567, the New Testament in Gaelic was published by itself; and in various successive years, and in separate volumes, the several books of the Old Testament were published. In 1756, the first edition of the New Testament being exhausted, the society published another, consisting of 20,000 copies. And as some of the first printed volumes of the Old Testament have been so much reduced in number, as to be insufficient to supply the urgent demands of the Highlands in general, and of the Society's own school in particular, a new edition of 20,000 copies has been lately undertaken (in 1820), at an expense of 2284l. 16s. defrayed by voluntary subscription. An act of charity, highly important and laudable, for whose accommodation it is designed, amount to no less than 335,000; of whom, it is computed, that 360,000 understand no other language than the Gaelic, or at least cannot comprehend a book written, or a continued discourse spoken, in any other.

BIBLE-DOCTORS, in Ecclesiastical History, a denomination by which the Schoolmen of the twelfth and thirteenth centuries were distingushed, who made the Scriptures the chief subject of their studies, and text of their lectures. However, in the course of the thirteenth century, the holy Scriptures, together with those who studied and explained them, fell into great neglect and even contempt. The Bible-Doctors were sighted as men of little learning or acumen; they had few scholars, and were not allowed an apartment, or a servant to attend them, or even a stated time for reading their lectures, in any of the famous universities of Europe. The illustrious Roger Bacon inveighed very bitterly against this abuse; and his excellent friend, Robert Grouhead, bishop of Lincoln, wrote a pathetic letter to the regents in theology in the university of Oxford, on this subject; earnestly entreating them to lay the foundations of theological learning in the study of the Scriptures, and to devote the morning hours to lectures on the Old and New Testaments. But
But all these remonstrances and exhortations had little or no effect.

BIBLIA, or BIBLIA sacra, in a military sense, denotes a machine used by the ancients for throwing stones or darts.

BIBLIANDER, Theodore, in Biography, whose true name was Ignatius, a learned Protestant divine, was born in 1504, at Bischofzell near St. Gall, in Switzerland. He offered as professor of divinity at Zurich from 1532 to 1569, when he was declared eminently, or gilt service, not because he was incapable of executing his office, but because he had advanced opinions that deviated from the standard of orthodoxy with regard to the doctrine of predestination. He died of the plague, at Zurich, in 1564. He was well acquainted with the oriental languages, and published, in 1532, an edition of the Koran; the text of which, Bayle says, he corrected by a collation of the Arabic and Latin copies; and he added marginal notes, pointing out and refuting its absurdities. But others say, that this edition is faulty, and Caprete Bibliander's fell in the oriental languages. To this edition he appended the lives of Mahomet and his successors, and prefaced an apology, by way of preface, which gave great offence by maintaining the lawfulness and utility of a free perusal of books adverse to true religion. He also wrote several other books on theological subjects, some of which are printed, and others remain in Ms. in the library at Zurich. He like wise finished the Bible of L'Abbe, called the "Zurich Bible," and printed in 1543, and translated from the Hebrew into Latin the first five books of the Bible, and the last 48 Psalms. Gen. Diet.

BIBLIOGRAPHIA, a branch of archigraphia, employed in the judging and perusing of ancient manuscripts, whether written in books, paper, or parchment. The science of it is now extended, and it figures a work intended to give information concerning the first, or best editions of books, and the ways of distinguishing and distinguishing them properly. In short, it is used for a notices, or description of printed books, either in the order of the alphabet of the times when printed, or of the subject-matters. In which sense, bibliographia amounts to much the same with what is otherwise called bibliotheca.

Literary journals afford also a kind of bibliographia.

BIBLIOLOGIUM, a kind of divination performed by means of the Bible. This amounts to much the same with what is otherwise called forta biblici, or fortes sanctorum. See Sortes. It consisted in taking passages of Scripture at hazard, and drawing indications thence concerning things future; as in Augustin's telli et legi. It was much used at the consecration of bishops. F. J. Daviades, a Jefuit, has published a bibliomania, under the borrowed name of Veriditam Christifianum.

BIBLIOMANIA, an extravagant passion for books, to a degree of madness; or a desire of accumulating them beyond all reason and need.

BIBLIOTHECA, from Skr. book, and Lat. repotter, from repeto, I lay up, properly signifies a library, or repository of books. See Library. It is also used for a compilation of all that has been written on a certain subject; or a depository of all the authors who have treated of it. In this sense, we have historical bibliotheca, as that of Diodorus Siculus; mythological bibliotheca, as that of Apollodorus; theological and sacred bibliotheca, as those of Ravenna, &c. It is also used for a catalogue of the books in a library; such as: bibliotheca Cirtifana, bibliotheca Cirtifana, bibliotheca Thomae, bibliotheca Gennaziana, bibliotheca du Boffana, &c.

L'Abbe has published a Bibliotheca biblicai, or a catalogue of the names of those who have written bibliotheca, which has since been continued and improved under another title by Tellier, from 800 writers to the number of no less than 2500. Schramius has also published a programma on the writers of theological bibliotheca.

BIBLIOTHECA is a name given to the books of the Old and New Testament, in respect of their excellence, and sufficiency for the use of the Christian life; and it is also a title given to divers journals, or periodical accounts in French of some books.

BIBLIOTHECA Patrum, or of the Fathers, is a collection of the writings of the elder fathers, printed in one or more volumes. The first of this kind was published at Paris by Marc. de Bigne in 1776.

BIBLIOTHECARIAN, a library keeper, otherwise called Librarian.

The word is also used for the author of a bibliotheca, or a catalogue of books.

In this sense, P. L'Abbe has given a bibliotheca, or catalogue of bibliothecarians. Guettier, Lepinus, Struvis, Fabricius, &c. are celebrated bibliothecarians.

BIBLIOTHEQUE Musicale. See Musical Library.

BIBLIS, in Entomology, a species of Papilio, with black dotted wings, and a band of fangious spots on the posterior ones. It is a native of America, and called papilio lepideria by Cramer, Geelnn. Obs. This must not be confounded with papilio iblis of Cramer, which is a very different insect, and seems to be a variety of papilio pentheus of Fabricius.

BIBLIS Font, in Ancient Geography, a celebrated fountain of Ionia, situate E.S.E. of Miletus. It is mentioned by Pausanias and Ovid.

BIBLIZH, biblis, an appellation given by some Romish writers to those who profess to adhere to Scripture alone as the sole rule of faith, exclusive of all tradition and the sup- posed authority of the church. In which sense, all protestants are, or ought to be, bibliesi. Biblihs, among Christians, unreservedly to Coristas or Texturaries among the Jews. The Christian doctors were divided, towards the close of the twelfth century, into two classes; viz. the biblics, and the scholasticis; the former were called doctors of the factual page, because they explained the doctrines of Christianity in their manner by the sacred writings; however, their reputation declined, and the scholastic theology prevailed in all the European colleges till the time of Luther. See Bible-Destruct.

BIBLUS, in Botany, an aquatic plant in Egypt, called also papyrus; of the skin whereof the ancient Egyptians made their paper. See Papyrus, and Paper.

Hence also the Greeks gave the denomination papyrus to books made of it. See Bible.

BIBLUS, in Ancient Geography, a river in the island of Naxia.

BIBONA, a place of Gallia Aquitania, in the route from Burdigata to Segudum.

BIBORA,Ripari, and Bay, in Geography, lie to the east of Cartage bay, on the main land of Honduras, about 8., the 14. 20. W. long, 83 45'.

BIBRA, Bera, or Blera, a town of Germany, in the circle of Upper Saxony, in Thuringia, 10 miles west of Naumburg, and 8 south of Querfurt.

BIBRACE, in Ancient Geography, a citadel of the Alatai, according to Strabo, but according to Caesar, a fortified town of Gaul, the capital of which was large and populous, now desolate; about 4 miles to the north-west of Autun, and called Borex, Bevray, and Bray.

BIBRAX, Prov., a town of Belgics, in Gaul, in the country of the Roman, north-west of Darmstadt. This town was attacked with great fury by the other Belgic nations, because it had declared for Caesar. C. R. Gal. 1. 2. c. 7.
BIC

BIERRICH, in Geography, a town of Germany, in the circle of the Upper Rhine, and principality of Nassau Saarbruck Ulingen, 3 miles S.W. of Wiesbaden.

BIBRICI, in Ancient Geography, an ancient people of Britain, who are supposed to have occupied the south-eastern part of Berkshire, from the Lodden on the west to the Thames on the east. These people undoubtedly came from that part of Gaul, where the town Bibractum was situated, and their name leads us to the discovery of their origin, as well as of the place of their residence in this island. It is not certainly known when this colony of the Bibrici left their native country, and settled in Britain, though it is probable that it was not long before Caesar's invasion, to whom, perhaps, they were engaged to submit by the influence and example of their friends and countrymen in Gaul. As the Bibrici were but a small nation, they seem to have been subdued by some of their neighbours before the invasion of Claudius, and therefore they are no further mentioned in history. The name of the hundred of Bray, in the Thanet, near Maidstone, is evidently derived from the name of their ancient inhabitants; as the ancient Bibrica, in France, now bears the name of Bray.

BICALCARATUS, in Zoology, a species of Pavo, of a brown colour, with the head lightly crested, and two spurs on each leg. Geoffrin. This is from Chineses of Buffon; l'opercule de Buffon, petit paon de Malacca de Sonnerat; crested pheasant of Edwards; and iris paeon of Latham.

This splendid bird is a native of China; in point of size it rather exceeds the common pheasant, and has a blackish bill, with the base of the upper mandible red from the nostrils; the irides are yellow; cere small, though composed of some pretty long feathers, and of a dull brown colour; the face is naked; sides of the head white; neck brown, fringed across with dusky; upper parts of the back, scapulars, and wing-coverts dull brown, dotted with pale brown, and yellow; and near the end of each feather a rich and glossy purple spot, changeable to green, to blue, or gold, in different points of view; lower part of the back and rump brown, spotted with white, and body beneath brown, fringed transversely with black; upper tail coverts longer than the tail, and each marked with a fine purple spot near the end, encircled with black and orange; legs and claws brown. This is the description of the male. The female is one third smaller; head, neck, and upper parts brown; head smooth; feathers on the upper parts marked with a dull blue spot, encircled with dull orange; and the legs have no spurs.

DICARI, in Geography, a river of Sicily, which runs into the Torni, 2 miles west of Scelfani.

BICARINATA, in Zoology, a species of Lacerta, with compressed tail of moderate length, and carinated above; out the back four rows of carinated scales. This is of greenish colour, and inhabits South America and India. Geoffrin. &c.

BICAUDALIS, in Anatomy, an appellation given by some anatomists to a muscle of the external ear, usually denominated the retracereus, or retracentus auris, which see.

BICAUDULIS, in Ichthyology, a species of Ostracion, of a triangular form, with two sub-caudal fins, and ten rays in the dorsal fin. Geoffrin. There is a supposed variety of this fish found in India, and described by Arctedi, in which the body is entirely covered with spots and tubercles.

BICE, or Bice, among Painters, a blue colour, prepared from the lapic Armenus, formerly brought from Armenia, but now from the silver mines in Germany. Phil. Trans. N° 179. p. 26. Dollis, v. i. p. 95. Bice is finally reduced to a fine powder by levigation. See SMALT.

The word comes from the barbarous Latin bice, or bicas; and that, perhaps, from the French bis, grey, grisais; whence bicus pannis. Vide Du Cange, Gloss. Lat. tom. i. p. 565: Skin. Etym. in voc.

Bice bears the body all of bright blues, used in common work; but is the palest in colour. It works indifferently well; but inclines a little to be sandy, and therefore requires good grinding on a very hard stone, and should be washed before it is used. It lies best near the eye of any blue now in use, except ultramarine. Its goodness lies in the brightness and coolness. It was formerly used in oil, and more frequently in water colours; but it is now much out of use. We have also a green bice, made of the blue, with the addition of opomum; and several compositions of indigo and verditer, with chalk and other cheap substantiae, are sold under the name of bice.

BICE, in the Mythology of the Hindoes, the name of one of their Gods, proceeding from Brahma, the immediate agent of the creation, under the supreme power. It derives its appellation from the belly or thighs, and denotes nourishment. It was also extended by its founder to provide the necessaries of life by agriculture and traffic.

BICEPS, from bis and caput, in Anatomy, is a name common to several muscles, which consist of two distinct portions, called heads. Theos which are commonly known at present by that appellation are the following.

Biceps flexor cubiti. The longer portion, or head, of this muscle, arises by a tendon from the upper part of the glæroid cavity of the femur; it then passes through the shoulder joint, and descends in the groove in the upper part of the os brachii, afterwards the fleshy fibres begin to be attached to it. The shorter portion arises tendinously and fleshy from the coraco-brachialis process of the scapula, in common with the coraco-brachialis muscle; a little below the middle of the os brachii, the heads unite and form a bulky muscle, the fibres of which terminate below in a strong roundish tendon, which is inserted into a tubercle, at the upper end of the radius, at that part which is next to the ulna. At the commencement of the lower tendon of this muscle, an aponeurosis is sent off from it, which foon expands into the fascia of the fore-arm.

The use of this muscle is numerous, and the consideration of them affords a good demonstration of the impropriety of denaminating a muscle from any single office which it may serve, as it tends to limit our idea of its utility. The action of this muscle tightens the fascia of the fore-arm; it turns the hand supine; it bends the joint of the elbow; it raises the arm towards the shoulder; and occasionally it brings the bones of the shoulder to the arm.

Biceps flexor carpi. The long portion, or head, of this muscle arises, in common with the semi-tendinosus, from the upper and back part of the tuberosity of the os ischium; the short portion arises from the linea aspera on the back part of the thigh-bone. The two portions having conjointed, produce a strong tendon a little above the external condyle of the os femoris, which forms the outer head flexing, and which is attached to the upper part or head of the ulna. The chief use of this muscle is to bend the leg upon the thigh, and when it is brought into that situation, to turn the leg outwards.

BICESTER, in Geography, a market-town of Oxfordshire, England, is situated in a valley on the banks of a small river, which falls into the Cherwell, at 11fip. It is a large respectable town, divided into two parts, called Market-end, a parish, and King's-end, a hamlet. This place and its vicinity have been pollified by the Romans, as its name implies; and many Roman coins, and other memorials of that people, have been discovered here and at Alcester, or Old Chesterton, at different times. The embankments at the latter place are nearly obliterated by the plough; but from the name, and the antiquities that have been found, it seems evidently
Barrer. 

Species. 

This is the town of Bickerston, near which the French were defeated by the Imperials in 1532; 2 miles N.E. of Milan.

BICOLOR, in *Contoholy*, a species of *Donax*, with an ovate shell marked with elevated fins, which decussate a few transverse ones; rufous, with a white ray on one side. *Circ. Gmel. &c.*

BICOLOR, a species of *Pinna* found in the Red sea. This kind is thin, inflated at the lateral margin; yellowish, with black brown rays, and a few longitudinal fins. *Chernitz.*

BICOLOR, in *Entomology*, a species of *Aphis* that inhabits Denmark. The thorax yellow and ferruginous; abdomen black and immaculate. Fabricius.

BICOLOR is also an Indian species of *Aphis*, of a black colour, with the abdomen hairy; fulvous above, and snowy-white beneath. Fabricius. This bears some resemblance to *Aphis* centuncularis, but is larger.

BICOLOR, a species of *Atilus* found in Europe. It is of a black colour, with the thorax and wing-cases reddish; feet, thighs, and tarsi black; abdomen yellow. *Linnaeus.*

BICOLOR, a species of *Buprestis*, with pointed wing-cases, of a brassy-green colour, with a yellow spot; breast and abdomen yellow. Fabricius. Inhabits South America.

BICOLOR, a species of *Cantharis*, of a yellow colour, with half of the wing-cases blue. Thunberg. Inhabits the Cape of Good Hope. Fabricius.

BICOLOR, a species of *Carabus* that inhabits North America. It is black above, and ferruginous beneath. Fabricius.

BICOLOR, a species of *Cerambyx* that inhabits Cayenne. This is ferruginous; thorax with two spines and tubercles; wing-cases beyond the middle, with the abdomen black. Fabricius.

BICOLOR, a species of *Chrysomela*, of a brassy-green above, and violaceous beneath. Fabricius. Inhabits Alexandria.

BICOLOR, a species of *Cicada* (*Cercopis*), of a greenish colour, with the upper part of the thorax fuscous. *Linnaeus.*

BICOLOR, a species of *Cryptophyllum* (*Erostyla*). This insect is of a black colour, and brassy above. Fabricius. A native of New Holland.

BICOLOR, a species of *Circulus* found in America. *Circ. Gmel. &c.*
B I C

This is of a black colour, with a rufous thorax and wing-cases. Fabricius.

Bicolor, a species of Dicrornes, of an oblong form and black colour; beneath tawny; wing-cases black. Fabricius. Inhabits Germany.

Bicolor, a species of Elater, of a brownish ferruginous colour; head and thorax brown; wing-cases fringed. Inhabits Europe. Linn. Mut. Lep.

Bicolor, a species of Gryllus (Lociulata), described by Linnæus. It is greenish, aperous, with the hinder thighs rufous beneath.

Bicolor, an African species of Ichneumon, of a ferruginous colour; tip of the abdomen, breast, and end of the upper wings black. Grinnell.

Bicolor, a species of Lampiris (Pyserchus), of a purplish colour, with the posterior end violaceous. Fabricius. Inhabits America, and lays the eggs in water cresses.

Bicolor, a species of Lampiris, of a purplish ferruginous colour, with the eyes, wings, and upper part of the head black. Smithson. New Art. Sci. Nat.

Bicolor, a species of Leptura (Dornia) that inhabits Europe. It is of a golden-colour, with the upper part of the thorax, and the wing-spots, green; the latter streaked with white; posterior thighs destitute. Grinnell. &c.

Bicolor, a species of Lcteron of a tawny dusky colour; wing-cases black at the tip. Gdinny. Inhabits France.

Bicolor, a species of Morella, described by Forster (Nov. Int.). It is of a black colour; wing-cases tawny, with the tip and band in the middle black. Very small. Inhabits England.

Bicolor, a species of Niphula found in Europe. This insect is ferruginous, with black wing-cases, having a ferruginous band at the base, and a spot of the same colour near the apex. Fabricius.

Bicolor, a species of Phalæa (Bombyx) found in Saxony. The wings are white, with a large yellow spot, with black marks. Fabricius.

Bicolor, a species of Scarceus, with the thorax very slightly arched, and on the head a single tubercle; wing-cases black; abdomen red. Fabricius.

Bicolor, a species of Silpha, of a brown colour, with rufous legs. Linn. &c. A native of Europe.

Bicolor, a species of Sphinx that inhabits New Holland. This is of a black colour; head, abdomen at the tip, and wings yellow; the latter brown at the tip. Gmelin. This insect was first described by Fabricius from a specimen in the collection of Sir Joseph Banks, under the specific name Biocorus.

Bicolor, a species of Staphilinus, of a black colour, with the antennæ, wing-cases, and legs ferruginous. Linn. A native of Europe.

Bicolor, a species of Tenthredo, of a blueish black, with the abdomen and base of the wings yellow; a band of black. Schrank. Inhabits Austria.

Bicolor, a species of Vespa that inhabits China; and in size and appearance resembles the common wasp. It is yellowish; antennæ above, crown, thorax, and vent brown. Fabricius. &c.

Bicolor, a species of Ichthyology, a species of Cardium, found in the Mediterranean sea. It is of a brown colour, with all the fins black. Brit. Fish.

Bicolor, in Ichthyology, a species of Aestus, found in the Mediterranean sea. It is of a brown colour, with all the fins black. Brit. Fish.}

This bird is native of Cayenne. Buffon calls it Martin: pele voris et rons de Cayenne: head; and Latham the rufous and green kingfisher. Length eight inches; bill black; legs reddish; breadth of the forms not banded. Buffon.

Bicolor, a species of Tinellus, that inhabits the woods of Jamaica and Bahama Islands, and is called by English writers the Bahama jaunaron. This bird and bird are black; back, wings, and tail, greenish. Grinnell. The length of this bird is four inches; its wings very monotonous. Buffon calls it Chlorus Lophopterus; and Buffon Vermivorum.

Bicolor, a species of Lanius, of a blue colour; white beneath; from black. Linn. &c. This is the Madagas- gascariænus of Linnaeus. New Vol. (part II.) Lanius Madagascar- cianus, of Buffon; Picoletla bluva Mélacgar. Bicolor, Blue$j1$blue of Lophopterus. It is about six inches and a half in length, and, as the synonyms imply, is a native of Madagascar.

The bill, head, margin of the quill-feathers, two middle tail-feathers, and exterior margin of the four next; legs and claws black. Female, forktid white beneath.

Bicolor, a species of Leuca found in the East Indies. Grinnell very briefly describes it as being of a fulvous colour, and red beneath. This is Tringa latirostris maintained by Buffon; Brunnus of Buffon; Little brown shrike of Edwards; and, gray-backed parrot of Latham. There is likewise a variety of this kind of a brownish colour, white beneath, and chin inclining to brownish. About three inches and a quarter in length; bill white; legs fulvous.

Bicolor, a species of Muscicapa, of a black colour; front, space round the eyes, throat, rump, purplish wings, band on the greater wing-coverts, tip of the tail, and under parts of the body, white. Grinnell. Buffon calls this Gobe mouches à ventre blanc de Cayenne; and Edwards and Latham Black and white-fly-catcher. A variety of this bird is white, except the hind part of the head, and neck, rump, wings, and tail, black, and legs, which are black. The female is of a uniform grey colour. Inhabits the moist meadows of Guiana.

Bicolor, a species of Picus, called by Latham, after Buffon, the Escardors scops piquer; Spithe in pie de Escardors, Buffon. This is variegated greyish and white; head crested, white on the sides; quill-feathers brown, spotted with white. Grinnell, &c.

The length of this beautiful bird is about six inches; bill lead colour; tibias white; plumage brownish-grey and white finely blended; above, the colours are intermixed transversely, and beneath in a perpendicular direction; crest on the sides intermixed with cinnamon; sides of the head white, verging to brown; legs lead head colour. The female has no crest, and is entirely brown.

Bicolor, a species of Trochilus, of a scarlet-golden colour, with the head a different blue. Grinnell. This is of the middle size, and inhabits Guadaloupe. It is Colibri No. 2. of Termin. Surin. ; Scarécoles and de Buffon; and Sapphire and emerald humming-bird of Latham. Bicolor, a species of Tucanus, of a brown colour, tinged with green; abdomen and vent white. This inhabits the Cape of Good Hope; and is ten inches long. Buffon calls it Melle brun de cap de bonne Esperance, and L. the bleu-nanpré, or blue.

BICOLORA, in Entomology, an Indian species of Phalæa (Neura). Wings yellow, with a broad brown band on margin. BICOLORATA, a species of Phalæa (Gomphus) with the wings bluish and fringed; anterior black at the tip, and spotted with white. Inhabits Surinam. Cramer. &c.

BICOLORATA, a species of Scarceus (Aelurus), found at the Cape of Good Hope. It is glorious green, beneath
of Palaemon (Crustacea) with
his head, and is distinguished by
his body, or second. In his middle,
with two horns, and a pair of feelers,
Scopli. Andants Camilla, on the na-
ture of Octopus, a species of
Hippus, is a name which has been
found in Nature, and is, in Botany, a
plant with an appearance of two horns. The term
for the part of the fragments.

BIDEFORD, or Bideford, in Devonshire, is a
place of some extent, and Extention is
considered as a term formedly to
calculate the three extant miles of the
church.

Bicerin, in E. Fr. 1792, a species of Scylla, with
two horns on the head; a rendered, single-toothed horn on
the head, and blue wings. Aubert. J. n. l. b. 14.
Inhabitants of America; of a middle age among the horned
kinds of the sea.

Bicornis, a species of Herda, with peculiar antennae;
theoh and wings. Brady. Ger. 1790.
Inhabitants of North America. Fabr. 1825.

Bicornis, a species of Corella, with acutely deno-
tated horns on the head. Fabr. 1825.
Inhabitants of New Zealand, at a distance with brown and black.

Bicornis, a species of Corella, with a single appendage on
the anterior angle of the wings. Later. Fabr. 1825.

Bicornis, a species of Mantis, found in South America, and in the
sea. The horned.

A. C. S. D. B.

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BIDER, or Bider, in the list of Coustani, denotes the
invitation of friends to drink, at force poor man's home,
who, in consideration hereof, expects some contribution be-
fore he will receive.

BIDALDI, a term kind of foot soldiers, mentioned by
the Roman historians, armed with two darts.

Hence the origin of the word, which isost retranslation
for "bidaldy" or "a bistail dart." They are also called
bidal, bidal, bidal, bidal, and bidal, and similars.

BIDASOA, or Bidas, in Geography, a river which
rises in the Pyrenees, and runs to the bay of Biscay between
Avalley and Fontoura, forming France from Spain. This
river was for a long time a subject of dispute between France
and Spain, each country lay claim to exclusive claim, but in the
11th century Louis XII of France, and Ferdinand, king of
Spain, agreed, that it should be common between the two
nations, and that the duty paid by the fisherman who passes
from Spain to France would belong to the latter, and of those
who pass the contrary way to the former. E. Franckly observes
that the inhabitants of the environs of this river have cars of
any commerce.

BIDDING, a town of the Netherlands, in the duchy
of Liège, containing two parish churches, and a
school; not far from N. and N. of Linburg.

BIDFORD, or Bideford, an ancient seat of
interest, is the town of D. of the
Great. It is situated on the north and west
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BID

charter of Edward I., and afterwards represented in several
parliaments, seems to have been greatly reduced at the time
when Leland visited it, for he merely mentions the river and
the bridge. Camden, however, speaks of it as "remarkable
for its populousness." At the time of the latter antiquity,
Bideford assumed a commercial importance, and carried
on trade with America and Newfoundland. Queen
Elizabeth granted it a charter of incorporation, which vested
the government in a mayor, five aldermen, seven capital bur-
gesses, a recorder, town-clerk, and two sergeants at arms.
By this charter the inhabitants are empowered to hold a
weekly market, and three annual fairs. Another charter was
however obtained in 1610, which confirmed the former, and
granted the townmen some additional powers and liberties.
The patrimony and residence of Sir Richard Granville and Sir
Walter Raleigh proved highly favourable to Bideford; for
after these worthy knights had discovered Virginia and Caro-
lina, they returned to, and settled here. In the time of the
civil wars, the inhabitants of this place declared themselves
very early in favour of the parliament; but their success did
not prove equal to their zeal, for in attempting to relieve
Exeter, they experienced a severe and total defeat, and im-
mediately resigned Bideford, Barnstaple, and their appen-
dages, to the royalists.

In the year 1646, Bideford was ravaged by a plague,
which appears to have been occasioned by the landing of
a cargo of Spanish wool; an article which at that period con-
stituted a principal part of the trade of the town. The cre-
dularity and superstition that characterized the English in the
seventeenth century are strikingly exemplified by an occurrence
which happened here in 1682. Three poor females were ac-
cused of witchcraft, and so dire and positive was the evidence
adduced against them, at several examinations before the
magistrates, that they were committed to Exeter gaol, and
soon afterwards tried, and executed for their alleged
crime.

About the middle of the last century, the export trade of
Bideford to Newfoundland was so considerable, that only two
other ports in the kingdom employed an equal number of
vessels, and in the export trade only one port excelled it.
During the unwise administration, and injurious wars of queen
Anne's reign, these commercial transactions materially suf-
f ered, and the French privateers obtained so many valuable
prizes from Bideford bay, that it was semantically termed the
Golden bay. The number of vessels now belonging to this
port is about one hundred; these vary in burthen from
twenty to two hundred and fifty tons, and are chiefly em-
ployed in the conveyance of coal and culm; in the exporta-
tion of oak bark to Ireland and Scotland; in the herring
trade; and in the importation of fish from Newfoundland.
The quay is conveniently situated near the centre of the
town, and the body of the water at high tides will bring up
vessels of 500 tons burthen. The chief manufacture of this
place is that of coarse brown earthenware, which is made
with clay brought from Fremington near Barnstaple. The
price of this is only two shillings and sixpence per ton. The
bridge at Bideford, built of stone, consists of twenty-four
irregular arches, and was constructed about the middle of
the fourteenth century. It is 677 feet in length, and was con-
structed at the expense of Sir Theobald Granville, knt., and
at the instigation of the bishop of the diocese, who granted indul-
gences to such persons as gave money in aid of the work.
The church, a spacious building, was erected in the form of
a cross about the middle of the fourteenth century. A house
of industry has lately been erected here; and a free school,
and free grammar school are ranked among the charitable
foundations of the town. The market-place is spacious, and
the town-hall is a large convenient building with two prisons
beneath it. In the parish of Bideford are 666 houses and
2697 inhabitants. This town is 211 miles S.W. from London.

Thomas Stukeley, a defendant of the celebrated chaplain
to Oliver Cromwell, was a native of Bideford, and was distin-
guished for many eccentricities of character. John Sibb-
beare M.D. an author of some eminence, was also born here
in the year 1709.

About five miles east of this town is Tawlock, the seat of
Sir Dorouchr Wrey, Bart. This place is mentioned by dif-
ferent authors as remarkable for embracing at one view
"the bel manor, bel manor, incest church, and richest
rectory in the county." Bishop's Tawton, near Tawlock,
is said to have been the first seat of the bishop of this dioces,
Watkins's History of Bideford. Maton's Tour through the
western Counties. Prince's Worthies of Devonshire. Beau-

BIDEFORD, a port of entry and port-town of America,
in York county, and district of Mayne, on the south-west side
of Saco river, on the sea-coast, 14 miles S.W. from Port-
land, 24 N.E. from York, and 105 from Boston. It con-
tains 1068 inhabitants, and the county-courts are held here
and at York. N. lat. 43° 26'. W. long. 70° 25'. The bay
of Bideford lies at the mouth of the river Saco, and has
Black point for the N.E. point, and cape Porpose for the
S.W. point.

BIDDING, is used for proclaiming or notifying; also for
offering a price for goods put up by auction.

BIDDING of the bonds, a charge or warning which the
parish priest gave to his parishioners at certain special times,
to say to many pater-noiters, &c. on their beads.

Bishop Burnet (Hist. Ref. vol. II. p. 20.) has preserved
the form, as it was in use before the reformation, which was
this; after the preacher had named and opened his text,
he called on the people to go to their prayers, telling them what
they were to pray for; "Ye shall pray (says he) for the king,
for the pope, for the holy catholic church, &c." When this
was done, all the people said their heads in a general silence,
and the minister knelt down and likewise said his; they
were to say to a pater-noiter, an ave-maria, Deus misereatur
nostr, domine fulvam fac regem, gloria patri, &c., and
then the sermon proceeded.

BIDDLE, John, in Biography, a distinguished person
among the Socinians, and reckoned the father of the English
fæt bearing this denomination, and lately attaining that of
Unitarians, was born at Wotton-under-Edge in Gloucester-
shire, in 1615; and after a previous grammatical education,
in the course of which he exhibited specimens of his talents
and improvement, admitted, in 1632, a student of Mag-
dalen-Hall, in the university of Oxford. Here he acquired
great reputation for learning and prudence, both as a stu-
dent and a tutor: and having taken his degrees of bache-
lor of arts in 1638, and of master of arts in 1641, he was,
in this latter year, recommended by the principal persons in
the university to the magistrates of Gloucester, and appointed
by them master of the free school of St. Mary de Crypt,
in that city. In this office he completely answered the expecta-
tions of his confratres, and gave great satisfaction to the
parents of the young persons who were entrusted to his care.
But he did not long enjoy, without molestation, the advan-
tages of this situation; for he was led, by a diligent study
of the seriptures, to adopt notions that were deemed hereti-
cal, concerning the Trinity, and more particularly to deny
the deity of the Holy Spirit. Failing to give satisfaction
to the magistrates, before whom he was summoned, by his
confession in 1644, he drew up a more explicit account and
defence
defence of his sentiments on this subject in a tract, entitled "Twelve arguments, drawn out of the scriptures, wherein the commonly received opinion touching the deity of the Holy Spirit is clearly and fully refuted." A copy of this treatise, which he had shown to some of his friends, having been, by the treachery of an acquaintance, delivered to the magistrates of the city, and to the parliament committee then residing there, he was committed, in December 1643, to the common goal. He was released, however, on giving security for his appearance when called for. Six months after he had obtained his liberty, he was summoned to appear before the parliament at Westminster, and examined by a committee. As he freely professed his disbelieve of the commonly received opinion concerning the divinity of the Holy Spirit, he was committed to the custody of one of the officers, and kept in that state of restraint for five years. In the main while, his book, entitled "Twelve arguments, &c." was published, and being declared blasphemous against the divinity of Christ, the house, in 1647, ordered it to be burnt by the common hangman. In the following year, the author, persisting in his opinions, and avowing the futility of their importance, published two other tracts of a similar nature; one entitled, "A confession of Faith touching the holy Trinity, according to the scripture;" and another entitled, "The testimonies of Irenæus, Justin Martyr, Tertullian," and of several other early writers, relating to the same subject. These books excited an alarm, and were the means of procuring a severe ordinance of parliament, issued in May 1648, at the solicitation of the Assembly of divines, who acted in this instance in a manner that entailed disgrace on their memory, and denounced the penalty of death against those who held opinions contrary to those that were established respecting the Trinity, and some other doctrines, accounted blasphemies and heresies; and severe penalties on those who differed in lesser matters. By this infamous and execrable decree the fate of Biddle seemed to be inevitable. But he escaped in consequence of a diffusion in parliament, supported by a party in the army, to whose cause this ordinance would have extended. After the death of the king, the Independents acquired influence, and introduced a kind of general toleration, under which Biddle was allowed to go to Staffordshire, where he was hospitably received by a judge of the peace, who, at his death, left him a legacy. From this retired asylum, however, he was removed by order of Bradshaw to closer confinement, in which state he continued for several years, under an imputation of blasphemy and heresy, which deprived him of all society, and reduced him to such lamentable indigence, that his whole support for a considerable time was a draught of milk morning and evening. The only divine who visited him, during this period, was Mr. Peter Gunning, afterwards bishop of Ely. In these circumstances he obtained temporary relief by being employed in correcting the proofs for a Greek Scripture, printed in London by Roger Daniel; and in 1651, he regained his liberty by the general act of oblivion, published by the parliament in that year. Of this liberty he availed himself, by instituting a Sunday's lecture for reading and explaining the scripture, and thus propagating his opinions. The Presbyterian ministers were rendered uneasy by his zeal and success, more especially as they could derive no aid for restraining him from the secular power. Not satisfied with the opportunities he enjoyed of disseminating his sentiments from the pulpit, and in the intercourse of private friendship, he had again recourse to the press, and in 1654, published his "Twofold Scripture catechism," which is larger and more comprehensive, and the other more brief, for the use of children. For this publication he was called to the bar of Cromwell's parliament, and committed to the Gate-house, where he was debarred the use of pen and ink, and the access of any visitor; and his books were also ordered to be burnt. Although a bill was brought into parliament for punishing him, he obtained his liberty after six months' confinement, by due course of law. Some time after, he had a dispute with a Baptist teacher, in the course of which he made use of some expressions, for which he was thrown into Newgate, and tried for his life at the next sessions, on the ordinance above-mentioned. On this occasion, counsel was at first denied him, but afterwards granted, and the trial deferred. In the mean while Cromwell interposed, and disapproving of his kind of intolerance, contented himself at first with detaining him in prison; but afterwards, in order to silence the clamours and petitions that were preferred against him, banished him for life to St. Mary's castle in the island of Scilly, assigning him an annual subsistence of 100 crowns. In this place of exile Biddle continued three years, applying himself to cloister study, and particularly to that of the Apocalypse. His friends at length prevailed with Cromwell to recall him; and in 1658, as no charge appeared against him, he was liberated. He then became pastor of an independent society in London, and propagated his opinions without molestation, till the fear of the presbyterian parliament assembled by Richard Cromwell, and the advice of his friends, induced him to retire into the country. On the dissolution of that parliament, he returned to his former situation. After the restoration of Charles II. he withdrew from public service, and exercised his ministry in private assemblies with his select friends. However, in June 1662, their meeting was discovered, and both he and his friends were apprehended and committed to prison; and at length, by processes of law, each of his hearers was fined 20l. and Biddle himself 100l.; and they were ordered to remain in prison till these fines were paid. The close confinement and foul air of a prison, within five weeks, brought upon him a distemper, which terminated his life, September 22, 1662, in the 47th year of his age: and thus was his death hastened by the intolerance which persecuted him during the greatest part of his life. Mr. Biddle possessed a considerable degree of learning; and with the Scriptures he was so conversant, that he could repeat the New Testament from memory, both in English and in Greek, as far as the 4th chapter of the revelation of St. John. He professed also, with this retentiveness of memory, powers of reasoning, which eminently qualified him for discriminating his peculiar opinions, and gaining proclivities. In his private character he was distinguished by his piety and devotion, by his moderation and temperance, by his constancy and benevolence, and by his irreproachable virtue. As he differed in some respects from Socinians and the foreign Unitarians, his followers were for some time denominated "Biddellites," but the name did not subsist after his death. Biog. Brit. Thourot's Life of Biddle, in Unitarian Arts, vol. iv. 1791. Neil's Hist. of the Puritans, vol. i. p. 476, 480.

BIDDELS, in Geograpby, a settlement on a branch of Licking river, in Bourbon county, Kentucky, about 6 miles W. N.W. from Middles on the N.E. side of the same branch, and 32 miles N.E. from Lexington.

equal, oblone, channelled, conceave. Cer. compound, uniform, tubular; corollas hermaphrodite, tubular. Proper one-petalled, funnel-form; border five-cleft, erect. Stam.-filaments five, capillary, very short; anther exstipitate, tubular. Pist. : gyn. oblong; style simple, the length of the andrenus; stigma two, oblong, reflex. Pet. : base calyx unchangled. Seeds solitary, oblong, angular; down with two or more awns, oblong, straight, acute, rough-hooked 1/2 awards. Rac. flat, chaffy; calia deciduous, flattish. Off. in most of the species an expanding five-awned calyle surrounds the compound flowers. Verbenae differs from Bident only in having a ray. Sometimes the corolla has one or two radial florets. 


Species 1. B. tricipita, trifid water-hemp-agrimony, or bun-yargold. Lin. sp. fl. 1756. Hudson 355. With. 756. Huds. 1811. Relh. 358. Sibth. 248. Abbot 157. Curt. Lond. fasc. 4. 1. 57. Smith Br. Brit. 257. 1. Verbeina seu canabina aquitana, flore minus uniforme, et magnis radios. Rais. Synop. 18. Eschschol. canabina feminina. Ger. et. 111. B. Conya palafris. Ed. tricartio divisa. Linn. propr. 53. Le. 15. "Leaves trifid, calyces somewhat leafy, seeds erect." Root annual; item from one to three feet high, with opposite. reddish branches, patent, leafy, obtusely quadrangular, furnished and smooth; leaves opposite, smooth, deep ferate, trifid or quinquafe . flowers terminating, solitary, somewhat eract, with undivided patent leaves; leaflets of the calyx unequal, plum, smooth, freckled with brown; the florets uniform, tubulose, yellow; seeds comprized, two or three angled, the angles backward, short, two or three awns, terminating; somewhat eract, yellow, three-cornered, prickly backward; the flaps of the receptacle resembling the habscts of the calyx, but narrower. It is frequent in places inundated, and on the brinks of ditches; flowers in August and September. This plant dyes a deep yellow; for which purpose the strand or yarn must be first steeped in alum water, then dried and steeped in a decoction of the plant, and afterwards boiled in the decoction. As by a chemical analysis it is found to pellucid much the same qualities as Verbeina acmenis, it may probably have the same good effects in expelling the stone and gravel. 2. B. minima, nodding bun-yargold. Lin. sp. fl. 1165. Reich. 3702. Huds. ed. 1. 310. Fl. Dan. t. 312. Abbot 1758. With. 874. 2. Curt. Lond. 3. 55. B. tricipita. 3. Huds. 355. B. Canus. 5. Smith Br. Br. 357. Verbeina minima. Dill. in Rais Synop. 128 t. 7. f. 2. Giff. 167. App. 66. "Leaves lanceolate sessile; flowers and seeds erect." This was first marked by Dillenius for a distinct species. Halls thought it to be no more than a variety of the cernua, in which he has been followed by all our British botanists. Found in dried marshes. 3. B. nodiflora, filiform-flowered bidens. Lin. spec. 1165. Dill. ed. 1. 74. 52. Reich. 3702. "Leaves oblong, quite entire, one-toothed, item dichotomous, flowers filiform, sessile." An annual plant, rising with forms eight or nine inches high, roth dist., rough, with white hairs, purpl at the base. A native of the East Indies; cultivated at Eltham by Dr. Sherard, in 1722. 4. B. cernua. Lin. spec. 1166. Reich. 3704. Auch. 6. afr. 47. "Leaves linear, peduncles capillaries, calyces mostly four-leaved, seeds erect, five-fold." Stem fringed, purplish, subtrichotomous, six or seven inches in height. An annual, and a native of the Cape of Good Hope. 5. B. cernua, drooping water-hemp-agrimony, or bun-yargold. Sp. pl. 1165. Huds. 356. With. 705. Hall 122. Rellh. 332. Sibth. 248. Abbot 177. Curt. Lond. ed. 3. 55. Fl. Dan. 11. 843. Smith Br. Brit. 357. 2. Pet. herb. t. 20. f. 6. Rall. herb. 361. 2. 5. Verbeina pubescent more flore lateo. Rais. Synop. 18. Baud. hist. v. 2. 1759. Cons. spicis desc. Sp pl. 1281. Chrysanthemum canabina britannicum, foliis integris. Moris. hist. t. 6. 5. f. 22. Eschschol. canabina chrysanthemum. Borel. lec. t. 1259. Cons. spicis desc. Bot. propr. 51. 1. 11. "Leaves lanceolate, flore calipal, flowers nodding, seeds erect." Root annual; item from one to two feet high, or more, upright, branched, a little hairy, purplish, dotted with red, round at bottom, flattened at top, with branches opposite, nearly upright, leaves opposite, moderately coarse, undivided, or with distant ferratures. spreading, smooth on both sides; peduncles fringed; flowers yellow-green, finally deinaps, generally radiate; calyx consisting of about seven jaws, a finely serrate at the edge, ribbed, turning back, and longer than the corolla; with eight corollas in the circumference, hermaphrodite, like the central ones, but with a tube more turbinated and depressed. In places overlooked for a long time, they change into ligulate neutral con-flores; receptacle pyramidal, four-cornered; feeds with four awns, two of which are larger; the prickles pointing downwards. This flowers a month later than the tripartita and in this has a strong smell, not very disagreeable. A native of most parts of Europe. Halles observes, that coreja is distinct of Linnæus differs in no respect from B. cernua, except in having raduate florets in the circumference; here, Dr. Stokes concludes, that bidens and coreja form one genus. Found at Ditchingham in Norfolk, and Tamworth in Cheshire; frequent in Ireland. 6. B. frondosa, inchoate-flowered Biders. Lin. spec. 1166. Gartn. fr. 2. 299. 2. Reinh. 57. 3. 11. Gartn. fruct. 2. 2. 2. B. Chinchaca. Agrimonia Molacca. Rumph. Amb. 6. 58. t. 15. f. 2. "Leaves pinnate, somewhat hairy, item with bearded joints, calyces with a simple involucres, feeds diverging." A native of America, and of Tungataboo in the South Seas. B. of China resem-bles the American; but in the latter the habscts are united, in the former they are distinct, and the seeds of the American have from two to five awns, and in the Chinese always four. The American fort was cultivated in 1732 by Dr. Sherard. 8. B. l improving, hemlock-leaved bidens. Lin. spec. 1166. Reich. 3. 705. Linn. ed. 1. 74. 52. Reich. 3702. Thumb. jep. p. 307. Linn. cochen. 488. Gartn. fr. 2. 2. 2. B. Chinchaca. Agrimonia Molacca. Rumph. Amb. 6. 58. t. 15. f. 2. "Leaves pinnate, somewhat hairy, item with bearded joints, calyces with a simple involucres, feeds diverging." An annual plant; a native of Virginia; cultivated in Kew garden in 1769. Laberco fays it is a native of China and Cochinchina. 9. B. sparsa, showy bidens. Lin. spec. 1166. Reich. 3. 706. Dill. ed. 1. 74. 52. Swartz. ed. 256. 2. Dill. ed. 1. 47. 55. 3. 7. Dill. ed. 1. 36. 5. 52. "Leaves simple, corolla-ovate, acuminated, branches trichotomous, ferratures, flowers hemispherical, peduncles elongated." A native of Jamaica, is cultivated in gardens, and on the ten-coast of the southern parts. Mr. Miller says, it grows naturally in South Carolina, and also at Caspian: cultivated at Eltham in
BID

BIDENS, a species of Casurina, of a black colour. Wings-cases patterned 1.4.1.1., with an oval spot on the front of each. This is a large bee, and is an inhabitant of India.

BIDENS, a species of Cardamine, that inhabits New Zealand. Its body is black; pollens triangles, dotted with a single spot, on each of the wing-cases. Fabricius.

BIDENS, a species of Cardamine (Lanata), found in New Holland, and described by Fabricius. It is characterised by thorax acutely pointed; wings-cases black tined at the tip.

BIDENS, a species of Mantis, that inhabits America. The thorax is lemon-yellow; wings-grey green, spotted with black; winged brown, deep black in the drake.

BIDENS, a species of Cellistis (Sparreri), the thorax of which is entirely pinious; inner hind and median, and hindered veins, tinged with brown; wing-cases pale. A native of Europe, Asia, and Africa. There is also another in this section, described by Linnaeus and Gmelin, under the name of B. This is an ovate shape, and the thorax acutely spiraled, and the antennae nothing.

BIDENS, a species of Sphex, of a black colour, having the head and a narrow pinnaceous; four yellow spots on the abdomen, and two spots on the thorax. Gmelin. I. inhabits Mexico.

BIDENS, a species of Vespa, of a black colour, with two spots on the thorax, and third for post of the hind wing, with yellow margin. Fabricius. It inhabits the north of Europe.

BIDENS, a species of Formica, that inhabits Surinam. Thorax with a bidicators tubercle; head wide; antennae ferrons; back very black. Fabricius. Sp. Inf.

BIDENTALIUM, Jodilis, a plant struck with a thunderbolt, and on that account converted to the gods, and to Jupiter and Minerva, and forbidden to be used, and to have any part of the tree cut down. It is said by Plutarch that the vineyard of Jupiter at the time of the Grecian wars was laid waste by this tree. This tree is said to have been used by the Romans for the making of their wine. Hence, they are found that a vineyard is always near a temple. The vineyard is extended to thunderbolts and to prevent its being burnt.

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that inhabits America. The abdomen is brown, with five whitish belts; vent bidentated. Fabricius.

BIDENTATUS, a species of Bostriuchus, described by Fabricius, Herbst, &c. It is black, and tesselated, rufous beneath, and armed with two hooked spines.

BIDIA, a species of Cryptocophalus (Cricoses), of a yellow colour; wing-cases black, yellowish at the tip. Fabricius. Inhabits Africa.

BIDIN, a species of Cerambyx, that inhabits South America. The thorax is slightly fuscous; wing-cases bidentated, rough, cinereous, and brown. Fabricius.

BIDLOO, a species of Ichneumon, that inhabits Europe. It is black, fuscous, and posterior part of the thorax yellow; on the latter two teeth, and the two first segments of the abdomen ferruginous. Linn. &c. The four anterior legs are russet brown; left black; tips white.

BIDOIN, a species of Cimex (Spinophus), found in France. This is long and brown; front bent; thorax beneath armed with two teeth on the anterior part. Geoffroy, Gmelin.

BIDON, a liquid measure of about five quarts English measure; seldom used except among ship's crews.

BIDOURLE, in Geography, a river of France, which passes by S. Hippolyte, Sauge, Sommieres, &c. and runs into the lake of Peraut, 3 leagues east of Montpellier.

BIDOUE, a river of France, which runs into the Adour, near the junction of that river with the gaves of Pau and Oleron.

BIDUAI, a country of Asiatic Turkey, the south part of Syria, bounded on the north by Palestine, on the west by Egypt, and on the east and south by Arabia; it is nearly desert, and has only a few scattered villages.

BIE, ADRIAN DE, in Biography, a painter of portraits and ornamental architecture, was born at Liere, in 1594, and after being initiated in the rudiments of his art by Wouter Abts, became the disciple of Redolph Schoof, a painter of considerable reputation at Paris. He perfected himself at Rome, where he spent six years in the study of the beautiful, and received great encouragement from persons of the first distinction. He so much excelled in the neatness of his pencilling, and in the delicacy of his touch and colouring, that he was frequently employed to paint on Jasper, agate, porphyry, and other precious materials. The place and time of his death are not ascertained. Pilkington. See BIE.

BIEBER, in Geography, a town of Germany, in the circle of the Upper Rhine, and county of Hanau Munzenberg, 16 miles east of Hanau. Near this town are a mine of copper and silver, and some works of iron and coal, in which the latter is prepared into a beautiful fuel.

BIEBERICH, a small but handsome town of Germany, seated on the borders of the Rhine, and in the vicinity of Mentz. It belongs to a prince of the name.

BIEBERSBACH, a town of Germany, in the circle of Franconia, and principality of Bayreuth.

BIEBRA, a river of Poland, which runs into the Narwa, near Wizna, in Malovia.

BIECZ, a town of Poland, in the palatinate of Cracow, seated on the river Wafaloke, and famous for its mines of vitriol.
BIE Shapiro, a town of Italy, in the state of the church, and province of Patrimonio, 10 miles W. of Sutri.

BIEBROOK, BIEBROOK, a small town of Germany, in the circle of Burgundy, and duchy of Luxembourg, which was flourishing till the year 1663, but soon afterwards laid waste by the French.

BIEBROOK, or BIBROOK, a small town of Germany, in the circle of the Upper Rhine, and principality of Upper Hesse, feated on the Alhills, 16 miles N.W. of Marburg, and formerly famous for its iron works and foundry.

BIEFVERSKOW, a district of Zealand, belonging to Denmark, including 12 churches.

BIEK, BIEK, BORIQUIN, or CRAB'S ISLAND, one of the Virgin Islands in the West Indies, about 2 miles in length, and not 6 in breadth, where it is widest. It is distant about 6 miles S.S.E. from Porto Rico. The soil is rich, and it has a good road on the south side, called Great Harbour. It is claimed by the Spanish, whose interest it is to let it remain desolate. N. lat. 18° 2'. W. long. 64°. See Virgin Islands.

BIEKOW, or Jezow, a town of Poland, in the patrimony of Leczycz, 24 miles S.E. of Leczycz.

BIEL, a town of Spain, in Aragon, 6 leagues S.W. of Jaca.—Alfo, a river of Spain, which joins the Eres at Exca. See Briene.

BIELA, a town of Bohemia, in the circle of Ceslau, 6 miles N.E. of Teutsch Brud.

BIELA, or BIELA, a town of Italy, in Piedmont; the capital of a small country, bounded on the north by the Alps, on the west by the duchy of Aosta, on the east by the Vercellos and the Maifern, and on the south by the Canaves; the town is rich and populous, containing about 7,000 inhabitants, and is divided into the Upper and Lower, and has four churches and four monasteries. It is famous for an image of the Virgin Mary; distant 13 miles N. from Ivrea, and 24 N. W. from Vercelli. N. lat. 45° 22'. E. long. 8° 3'.

BIELACH, a river of Germany, in the archduchy of Austria, which runs into the Danube, near Melek.

BIEIILA, a river of Russia, which rises in the Uralian mountains, and after traversing the government of Ufa, discharges itself into the Kama, on the borders of the government of Cahan.

BIELASTENA, a town of Croatia, 10 miles north of Bihae.

BIELAY, a town of Bohemia, in the circle of Komratz, 4 miles S. W. of Branau.

BIELEK, or BIELA, a town of Siberia, 40 miles south of Eniheik.

BIELOPOL, a town of Poland, in the patrimony of Kiof, 28 miles west of Balacterkiew.

BIELEF, a town and district of Russia, in the government of Tula, feated on the Oca, 50 miles W.S.W. of Tula.

BIELEFELD, a town of Germany, in the circle of Westphalia, and county of Raverberg, divided by the Lutterbach into the old and new town, feated at the foot of a mountain, and containing about 800 houses. The inhabitants are partly Lutherans, and partly Roman Catholics. The old town has two churches, the new a convent and a chapel. This town received municipal privileges in 1287, and was formerly Hanifacit; it is distant 22 miles north from Lippstadt.

BIELEGROD, a town formerly called Sarkel, and district of Russia, in the government of Kjurk, feated on the Donetz; 50 miles S.S.W. from Kjurk. N. lat. 56° 55'. E. long. 36°. This town was built in 990, by the great duke Vladimir, and is an archbishop's see; it submitted to the arms of Potemkin, in 1790.

BIELEGROD, See Axerman and Moscow.

BIELEGRAF, a town of Croatia, 40 miles S.E. of Bibern.

BIELEPHN, a town of Russian Tartary. N. lat. 43° 20'. E. long. 66° 40'.

BIELEPHN, or BILJIN, a town of Lithuania, in the province of Vilna, feated on the Niemen, 10 miles south of Lida. N. lat. 53° 35'. E. long. 25° 40'.

BIELESKI, a town of Poland, in the patrimony of Kiof, 41 miles S.W. of Kiof.

BIELETZY, See Biltucz.

BIELEA. See Biela.

BIELEB, a town of France, in the department of the Upper Marne, and chief place of a canton, in the district of Chamont, 6 miles E.S.E. of Chamont.—Alfo, a town of France, in the department of the Lower Pyrenees, and chief place of a canton, in the district of Oleron, 14 miles south of Oleron.

BIELOI, a town and district of Russia, in the government of Smolensko, on the small river Volchina, falling into the Meffn or Meza, which discharges itself into the Duna; 50 miles N.E. of Smolensko. N. lat. 55° 0'. E. long. 34°.

—Alfo, an island in the Karkoi fea, about 70 miles in circumference, 20 miles from the continent of Russia. N. lat. 73° 20'. E. long. 69° 14'.

BIELOKAMSKOJ, a fortress of Russia, in Siberia, on the east side of the Itil, 12 miles S.E. of Semipolatno.

BIELOOZERO, or WHITE LAKE, a lake of Russia, in the government of Novgorod, about 50 versts long, and 30 broad, which receives into it several small streams. The only one that flows out of it, is the Schekfa, which falls into the Volga. The water of this lake is clear, having a bottom partly of clay, and partly of stone. The clay is generally of a white colour, and in stormy weather causeth a strong white foam upon the surface of the water. From this circumference, the lake first obtained its name Bieleso, or White. It contains plenty of fish and crabs. N. lat. 59° 42'. E. long. 66° 20'.

BIELOPOLJE, a town and district of Russia, in the government of Karkoff, feated on a rivulet falling into the Seim, 85 miles N.N.W. of Karkoff.

BIELOVITZ, a town of Croatia, 11 miles S.W. of Damianovitz.

BIELOVODSK, a town and district of Russia, in the government of Voronetz, feated on the Derkul, which falls into the Doca, 130 miles south of Voronetz. N. lat. 50° 42'. E. long. 39° 20'.

BIELOW, a town of Poland, in the patrimony of Volhina, 36 miles east of Lucko.

BIELOZERSK, a town and district of Russia, in the government of Novgorod, on the south side of the lake Bielegrof, near the efflux of the river Schekfa, 64 miles N.E. of Vologda. N. lat. 59° 40'. E. long. 37° 10'.

BIELOSA, a town of Spain, in Aragon, 6 leagues from Alcuia.

BIELSK, a town of Poland, and capital of the patrimony of Podolachia, where the dietine for the district is held. It is little better than a miserable village, though called in the geographical descriptions of Poland, a large town. N. lat. 52° 48'. E. long. 23° 28'.—Alfo, a town of Poland, in the patrimony of Ploczko, 10 miles N.E. of Ploczko.

BIELTSG, a town of Bohemia, in the circle of Chrudim, 16 miles north of Chrudim.

BIELE, in Zoology, Delphinus Leucis (Genua) in Steiner's Kampfleicht, &c.

BIEUASME, John, in Biography, born in 1601 at Mazeres,
Mazeres, a city in France, where he practised surgery with much success, as to attract the notice of his sovereign, Lewis XIV., by whom he was made surgeon to the army in Flanders. He acquired great reputation, Haller says, by introducing the future of the organ, and by curing a puncture of the brachial artery in a young nobleman. He gives excellent cautions, on taking up the artery, after amputating a limb, to avoid including the nerve in the ligature. He performed the paracentesis of the thorax successfully, and appears to have been a bold and expert operator, and to have made considerable improvements in his art. He died 1681, aged 80 years. A few years after his death, viz. in 1688, a polished work was published, containing an account of these operations, under the title of "Opérations de Chirurgie, par une méthode courte et facile," 12mo. Paris. Haller Bib. Anat. Eluy. Dict. Hist.

BIENENBUTTEL, in Geography, a town of Germany, in the circle of Lower Saxony, and principality of Lunenburg, 10 miles S.S.E. of Lunenburg.

BIENNE, a small district of Switzerland, lies between a lake of the same name and a chain of the Lura mountains. It is surrounded by the cantons of Berne and Solothurn, the bishopric of Basel, and the principality of Neuchâtel. The bishop of Basle is the sovereign of this little state, but his power, even before the French revolution, was exceedingly limited; and its constitutional was neither a limited monarchy nor an independent republic, but a kind of mixed government, partaking in some degree of both. The bishop of Basle, upon his promotion to the fee, received the homage of the citizens and militia of the town of Bienna, with attendant tokens of absolute submission, but at the same time he confirmed, in the strongest manner, all their privileges and franchises. The mayor appointed by him was his representative, to whom it belonged to convene and preside in the little council, as the chief court of justice, to collect the suffrages, and to declare the sentence; but without giving any vote himself. Although justice was carried on, and executed in the name of the bishop, yet neither that prince, nor the mayor, had the prerogative of pardoning criminals, or of mitigating the sentence. All causes, civil and criminal, were brought before the council in the first instance; and in more important proceedings, an appeal lay to the sovereign council. In both cases, each party chose a member of the council to act as his advocate, which office he discharged without fee or remuneration. The sovereign's revenue amounted to about 300L. a year, nor did he possess the least share in the administration. The legislative authority resided in the great and little councils combined; the former consisting of 40 members, and the latter, to which the executive power belonged, being composed of 24; and it was required that the members of each council should be married men. Both councils elected their respective members; and therefore the constitution was altogether aristocratic. The burgomaster, or chief of the regency, was chosen by the two councils, and presided at their meetings, and retained his office during life; but it was necessary that he, as well as the several magistrates, should be confirmed annually by the two councils. The salaries annexed to these posts were small, and the general expenses of government so indifferently that the revenues of the state were sufficiently ample.

This republic, though a Protestant one, under the sovereignty of a Catholic bishop, enjoyed in the fullest extent the power of imposing taxes, contracting alliances, declaring war and peace; and, in short, of exercising every other act of absolute and independent legislation. Its singular constitution was guaranteed by Berne, Friburg, and Soleure, with which the town was closely allied, having connected itself with the former in 1352, with the second in 1456, and with the latter in 1382; in consequence of which union it became a member of the Helvetic confederacy. This alliance between the cantons and the town of Bienna was paramount to that of the same cantons with the bishop of Basle; for the town enjoyed the right of sending deputies to every general diet, ordinary or extraordinary, a privilege not possesed by the bishop. The language of the country is a provincial German; but, as the territory borders on the principality of Neuchâtel, the inhabitants speak also a corrupt French. The extent of the town and territory of Bienna is estimated at 144 square geographical miles, and its population at 5,500, or nearly 6000 persons; the people are very active and industrious. Bienna forms an important pass into the Swiss territories; accordingly, it was occupied by the French on the 8th of February 1798, and annexed to France as subject to the bishop of Basle, whose rights they assumed in consequence of having seized his territories.

BIENNE, called by the Germans Biel, the capital of the above district, is situated at the foot of mount Jura, and at a little distance from the lake of the same name. Between the town and the lake is a plain, which the sovereign council, by a kind of Agrarian law, that was honourable to the legislature, allotted, by distinct portions, to each burgher for his own exclusive use; and it is entirely laid out in small kitchen gardens. Several manufactures have been established in the town, which, considering its size, carries on a tolerable trade. The government, by adopting the liberal policy of conferring the burghership at an early rate, has contributed to increase the population of the town, and to extend its commerce. N. lat. 47° 8', E. long. 1° 4'.

BIENNE, lake of, lies to the north-east of that of Neuchâtel, with which it is connected by the Thieille, which separates the country of Neuchâtel from the canton of Berne. It is about 9 miles long, and 4 broad; its borders are pleasing and picturesque, as it is skirted with agreeable walks and country houses; and the town of Nidau forms a very beautiful object upon its eastern side. Towards the southern extremity of this lake is the island of St. Peter, sometimes called the island of La Motte, and sometimes Rousseau's island, from its having been the place of Rousseau's retirement and residence, when by the violence of the populace he was obliged to withdraw from Môtier, where Frederic king of Prussia had endeavoured to protect him. Mr. Coxe, when he visited this island, landed on the south side of it, and passed through an agreeable meadow, skirted with vineyards, to a large farm house, formerly a convent, and secularised at the reformation, but inhabited, at the time of Mr. Coxe's visit, by the steward of the general hospital at Berne, to which the island belonged. "The island," says Mr. Coxe, "is about 2 miles in circumference, and richly wooded with various shrubs and trees, particularly with large oaks, beech, and Spanish chestnuts. Its surface is gently undulating; the southern shore, covered with herbage, forms a gradual slope to the lake; the remaining borders are steep and rocky; in a few places their summits are thinly fringed with shrubs; in others their perpendicular sides are clothed to the water's edge with hanging woods. The views from the different parts of the island are beautiful and diversified; that to the north is the most extensive and pleasing. It commands the lake of Bienna, which is of an oval form; its cultivated borders spotted with villages and castles, with the towns of Nidau and Bienna standing on the further extremity. Agreeable walks are carried through the woods, and terminate at a circular pavilion placed in the centre of the island. During vintage, particularly, and on Sunday, which is the usual day of festivity, the island is filled with parties, who take refreshment at the farm-house, stray about the woods, or dance in the circular building, and animate these romantic but solitary scenes."
BIE

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cenes." "Rouffec occupied an apartment in the farm-
house, the only dwelling in the island. He lived with the
flewman and his family, who are the present inhabitants
(1785). The woman informed me, that he paid for his
board and lodgings 40 shillings a month; that he usually
rose at six, dined with the family at twelve, and after
a flight supper retired to rest at nine. She added, he was ex-
tremely cheerful and agreeable; conversed with the family
with the greatest ease and complacency, and conformed to
their hours and manner of living; he amused himself entirely
in wandering about the woods, and searching for plants,
which he used to explain to them with singular satisfaction.
Rouffec mentions his residence in this delightful island with
the highest terms of rapture, and with his usual proneness to
eaggeration. "I was permitted," says he, "to remain
only two months in this delightful island; but I could have
passed there two years, two centuries, all eternity, without
suffering a moment's ennui, although my whole society con-
fined of the flewman and family, good, but plain people. I
elicited those two months the most happy period of my life;
and so happy, that I could have passed my whole existence
without even a momentary wish for another situation." 
Coxe's Travels in Switzerland, &c. vol. ii. p. 152, &c.

BIENNIAL Plants, in Botany, denote such, as the
epithet imports, that are of two years' duration. Of this
tribe there are numerous plants, which, being raised one
year from seed, generally attain perfection in the same year,
or within about twelve months, shooting up tallks, pro-
ducing flowers, and perfecting seeds in the following spring
or summer; and soon after commonly wither, or apparently
decay and dwindle, so that they soon die off. Biennials are
therefore, always in their prime the first or second summer.
They consist both of herbaceous and flower plants. Thoese
of the former sort are the cabbage, savory, carrot, parsnip,
beet, onion, leek, &c.; and thoese of the latter are the
Cauterbury bell, French honey-fucklc, wall-flower, flock
july-flower, sweet-william, China-pink, common-pink, matted
pink, carnation, frabious, holly-hock, tree-mallow, vervain
mellow, tree-primrose, honeyl, or moon-wort, &c.

BIENTINA, in Geography, a town of Italy, in the
duchy of Tuscany, on the side of a lake, called the "lake
of Bientina," or the "lake of Seffo," which lake is about
6 miles long, and 5 wide; 12 miles east of Pisa, and 28
west of Florence. The territory of Bientina lies in the
middle of a marsh, in the centre of a valley, not very
spacious, bounded by the high mountains of Pisa, and by
those of Lucca and Valdimievo, which interrupt the wind,
and prevent a renewal of air; and it is, therefore, as one
would imagine by its situation, peculiarly unhealthy and
unfavourable for inhabitants. It is nevertheless very popu-
lous, and sufficiently healthful even in summer. The
principal causes of this fulabity are said to be, the
numerous population, the extensive commerce, and the extreme
attention that is paid to the continual discharge of the rain-
waters, but, above all, the advantage of an abundant spring,
which descends from the hills of St. Colome, by means of
long aqueducts, and supplies the inhabitants with excellent
water. The situation of Bientina, therefore, duly examined,
shows how far the art of man is capable of rendering habi-
table, and even fabulous, places naturally pleasant.

BIENVILLE, D. T. De, M. D. in Biography, born in
France, practiced medicine many years in the Hague, and is
only known by the following works, which bear his name:
"La Nymphomanie, ou Traite de la fureur uterine," Amst.
1771, 8vo.; "Recherches theoriques et pratiques fur la
Petite verme," 1772, 8vo.; "Traite des erreurs populaires,
fur la fante," La Hague, 1775, 8vo.

BIER, a kind of wooden carriage, on which the bodies
of the dead are borne to their grave. The word comes from
the French bier, which signifies the same. It is called in
Latin funerus, a funeral. Among the Romans the common
bier, upon which the poorer fort were carried, was
called jandapaia; that used for the richer fort, leitra, leitra
funebri, sometimes leita. The former was only a sort of
wooden shet, solis arcu, which was burnt with the body:
the latter was weathered and gilded for pomp. It was carried
bare, or uncovered, when the person died a natural and easy
death; when he was much disfigured or distorted, it was
veiled or covered over.

BIER, is more particularly used for that on which the
bodies of fants are placed in the church to rest, and exposed
to the veneration of the devout. This is often enriched
with gold, silver, and precious stones; and furnished temper-
atons, in many instances, to pilage.

BIERG, in Geography, a hered-or district, of the diocese
of Fuenz in Denmark, including 12 churches, and several
noblemen's seats.

BIERLING, Gaspan Thophilus, in Biography,
took his degree of doctor in medicine at Padua, about
the middle of the 17th century, whence he returned to Neuge-
burg, his native city, where he was in considerable eluc-
tion. He published a "Adeferariarum curiiorum Centuria
prima," June, 1679, 4to. He describes the effects of eat-
ing the hyoeryum (henbane), drawerets, and delirium,
which are cured, he says, by taking the extract of caltars,
and the effects from the bite of a viper, cured by eating the
flesh of one of those reptiles. He had the merit of recom-
mending the cool treatnut; and even bleeding, in the small-
post, contrary to the then generally received opinion. In the
remainder of his works, which are numerous, but in little es-

BIERNE, in Geography, a town of France, in the de-
partment of Mayenne, and chief place of a canton, in the
district of Chateau-Gontier. The place contains 810, and
the canton 822; inhabitants: the territory includes 123
kilometres and 12 communes.

BIERVLIET, a small town of Flanders, on the west
side of the Scheldt, which has been much reduced by frequent
iminations, and the fortifications of which were destroyed
in 1688. William Beukelvoord, or, as others have written
his name, Beukelings, who taught the Dutch the art of
curing herring, was a native of this place, and died here in
1597. The town is 7 leagues north of Ghent, and 4 E. N. E.
of Silves. N. lat. 51° 25'. E. long. 3° 42'.

BIESOS, a large lake in the Merowe, between Dort
and Gerttudenburg, formed by the imprition of the banks
dykes.

BIELSE, a river of Germany, which rises 8 miles south-
west from Stendal, in the Old Mark of Brandenburg, and
purling its course to Seuchten, changes its name to Aland.

BIESENTHAL, a town of Germany, in the circle of
Upper Saxony, and Middle Mark of Brandenburg, 20 miles
N.E. of Berlin.

BIESIUS, Nicholas, in Biography, born at Ghent in
Flanders, March 27, 1516, studied medicine at Louvain;
thence he went to Valencia in Spain, and afterwards to Si-
enna, in Italy, where he took his degree of doctor. Re-
turning to Louvain he was advanced to the chair of pro-
fessor in medicine, which he filled with credit several
years, expounding to his pupils, as the custom then was, the
works of Galen. He was then called by the emperor Maxim-
ian II. to Vienna, and appointed his physician, which post
he held until April 1572, when he was suddenly cut off by
a fit of apoplexy. His works are, "Theoretice Medicinæ,
libri sex," Ant. 1558, 4to.; in Armenia medicinæ Gala-
ieni Commentarii," 1563, 8vo.; "De Methodo Medicinæ,"
1563. 8vo.; "De Natura libri quinque," 1573, 8vo.; the
two last works have been several times reprinted.

Y y 2
BIESMIES, in Geography, a place of France, where is a
pale across the Aine, from the department of the Meuse to
that of the Marne; 3 miles from St. Menehould, and 12 from
Grand Pre.

BIESNIN, a town of Poland, in the patalinate of
Plocko. N. lat. 53°. E. long. 20° 8'.

BIETIGHEIM, a town of Germany, in the duchy of
Wurttemberg, at the confluence of the Enz and Mettersbach;
10 miles N. of Stuttgart, and 50 S.S.E. of Heidelberg.

BIERE, a river of France, which rises a little to the
south of Verfailles, and falling towards Paris, changes its
terminating point for that of Gobelins, on account of its water
being used in that manufacture, and soon after it joins
the Seine.

BIEUZI, a town of France, in the department of Mor-
bihan, and chief place of a canton, in the district of Pontivy ;
2 leagues S.S.W. of Pontivy.

BIÉZOW, or Birdsow, a town of Boheinia, in the
circle of Koningingratz; 3 miles east of Koningingratz.

BIFARIA, Folia, in Botany, denote leaves that point
two ways.

BIFASCIANA, in Entomology, a species of Phalaena
(Tortrix). The anterior wings are teffaceous; two ob-
lique bands, spot, and arched mark at the apex brown.

BIFASCIATA, in Entomology, a species of Bulla, the
shell of which is somewhat tapering, erect, and white, with
two broad reddish bands at the aperture. Lifter. Gmelin.

BIFASCIATUS, a species of Voluta, described by Lifter
and Martini. This shell is thin, transferable, fluted, and
flesh colored, with two white bands and a fingle tooth on
the pillar. It is rather less than an inch in length; and has
a long narrow aperture. Native place unknown.

BIFASCIATA, a species of Cypraea, of an oblong form
and purplish, with a straw-coloured band, and a narrower
white one, a brown border. Gmelin. Length nearly
four inches. Country unknown.

BIFASCIATA, a species of Nerita, of a blackish colour,
with two holy bands and white tip. A native of India.
Gmelin, Chemnitz, &c.

BIFASCIATA, in Entomology, a species of Silphia, found
in Saxony. This is black, with two bands and a spot at the
apex of ferruginous colour. Fabricius. This is a small insect.

BIFASCIATA, a species of Cassida, that inhabits South
America. It is pale with two brown bands. Gmelin.

BIFASCIATA, a species of Coccinella, of a ferruginous
colour, with two bands and four dots of black. Fabricius.
This insect inhabits the Cape of Good Hope; and is Coccin-
ella flexuosa of Thunberg.

BIFASCIATA, a species of Chrysomelida of a large size,
that is found at Cayembe. It is teffaceous: wing-cafes
braly and shining: two spots and two bands of yellow.
Fabricius, &c.

BIFASCIATA, a species of Cicada (Cecropia), of a yel-
lo fgh colour, with brown wing-cafes, and two white bands.
Fabricius. This is Cicada fulca, faciscis alarum binis albis, of
Linn. Synl. Nat. XII. and Cicada trifasciata, of Degeer.
Inhabits the north of Europe.

BIFASCIATA, a species of Phalaena (Geometra), de-
b described by Linnæus as a native of Europe. The anterior
wings are cinereous, clouded, with two bands; posterior
clear white.

BIFASCIATA, a species of Libellula, that inhabits
America. The wings are hyaline, with a brown spot at the
base, and two bands of the same colour. Fabricius. Ob.
This is Libellula trinaculata of Degeer; and Libellula
patchella of Drury.

BIFASCIATA, a species of Tenthredo, that inhabits Eu-
rope. The general colour is brown; thorax black; mouth
scutal, and four spots white: on the abdomen two interrupted
yellow bands; margin of the wings and legs yellow.

BIFASCIATA, a species of Mutilla, that inhabits New
York. The colour is black; upper part of the head and
thorax, and two bands on the abdomen red: wing violence-
ous-black. Swederus, Nov. Act. Stockh. Entirely downy,
and twice the size of M. Europaea.

BIFASCIATA, a species of Tipula, of a yellowish col-
our, with transparent wings palely falcinated with brown.
Schrack, Inf. Auct. Of the middle size, with the eyes black.

BIFASCIATA, a species of Musca, that inhabits South
America. It is rufous, with two golden bands on the abdo-
men. Fabricius, &c.

BIFASCIATA, a species of Scolia, that inhabits New
York. This insect is of a black colour; two dots on the
anterior part of the thorax, scutal, and two interrupted
Stockh.

BIFASCIATUS, in Conchology, a species of Conus,
figured by Born. This kind is white with angulated
chfit lines, and two orange bands: spine rather prominent:
base surrounded with orange lines, and the intermediate
spaces with teffellated spots. Country unknown.

BIFASCIATUS, in Entomology, a species of Scarabaeus,
that inhabits Coromandel; on the thorax is a triple protuber-
ance, with an erect horn on the head; wing-cafes black,
with two rufous bands. Fabricius.

BIFASCIATUS, a species of Dermestes, of a black
colour, with two waved yellow bands: thorax teffellated
with cinereous colour. Thunberg. A native of the Cape
of Good Hope.

BIFASCIATUS, a species of Bostrichus, found in Si-
bcrina. It is of a black colour: wing-cafes yellow, with two
blueish-black denticulated bands. Gmelin. This is Der-
meses bifasciatatus de Lepech. pt.

BIFASCIATUS, a species of Cryptoccephalus, that in-
habits Africa. It is rufous, with two spots on the thorax,
and two bands on the wing-cafes of black. Fabricius.

BIFASCIATUS, a species of Cerambyx (Prionus), found
in South America. The thorax is denticulated: body
black: wing-cafes red, with two black bands: antennæ short.
Gronovius, Fabricius, &c.

BIFASCIATUS, a species of Attelabus (Cerus), of a
brassy-green and downy: wing-cafes blue, with two scarlet
lines. Fabricius. A native of Siberia.

BIFASCIATUS, a species of Gryllus (Bulla-adeidium),
of a fusco brown with white spots, and two lateral ochre-

BIFASCIATILLA, a species of Phalaena (Insea), with
glossy glossy wings: with two bands of white, the
hinder one interrupted: head rufous. Fabricius. Inhabits
Denmark.

BIFERÆ, in Botany, denote plants that flower twice a
year, or in spring and autumn.

BIFERINO, in Geography, a river of Italy, which runs
into the Adriatic, not far from Termini.

BIFED, in Middle Age Writers, a machine for casting
stones and darts, having a moveable counterpoise, which
turned round its yard.

BIFID LEAF, in Botany. See Leaf.

BIFIDUS, in Entomology, a species of Cimex (Redu-
vius), of a black colour: wing-cafes with a rufous band:
an erect bifid spine on the scutellum. Inhabits China, and is

BIFOLIUM, in Botany. See Ophrys.

BIFORIS, in Natural History, a species of Echinus,
having at the base five furrows, and ten flexuous radiated
lines;
BIG

lines; and near the vent two oblong perforations. Lekke apud Klein. Its habitat unknown.

BIFORMIS, an appellation given to Bacchus, either because he is represented sometimes as a young man, sometimes as old; sometimes with a beard, and sometimes without one; or because wine, of which he is the symbol, renders men sorrowful and frantic, or gay and pleasurable.

BIFRONS, a peron doubled-fronted, or two faced.

Bifrons is more peculiarly an appellation of Janus, who was represented by the ancients with two faces, as being supposed to look both backwards and forwards; though other reasons for it are recited by Plutarch. Sometimes he was painted with four faces, quadrifrons, as representing the four leafovs.

Bifrons, in Entomology, a species of Brenius, that inhabits Cayenne. This insect is black, with fribed wing-cases, having glabrous yellow spots. Fabriunicus.

Bifrons, a species of Ichneumon, described by Linneus: it is an European insect of a black colour, with the front white, with a black spot beneath the antennæ: tip of the petiole, and two frit segments of the abdomen, with the legs reddish. Mot. Lek.

Bifrons, in Natural History, a species of Niteris, described by O. Fabricius, and Milli, as a native of the north sea. It is deprefed; peduncles with a simple fextigeral papilla, ciliated above; those in the middle also branched. This creature is continually in motion; about an inch long, and of a fulvous or brownish colour; head white; eyes four; cirth feven; body attenuated at both ends, and confiding of fift fix joints.

BIFURCATUS, in Entomology, a species of Camex (Oblongus), that inhabits Germany. It is blackish; abdomen pale yellow, and bifurred. Schaefer. Antenna confusion of fift fix joints.

BIGA, a chariot for racing, drawn by two horfes abreast. The word ought rather to be written biges, in the plural; or, d. biges, two horfes being joined by a jugum, or yoke. Bigæ stands contradistinguished from triges, quadrages, &c. Bigæ are of very ancient standing; all the heroes in Homer, Heciod, Virgil, &c. fought in them. The invention of bigæ is attributed by Pliny (N. H. vii. 56.) to the Phrygians; by Isidore, (xvii. 35.) to Cyrtidenes of Sicyon, who first yoked two horfes together. They were first introduced into the Olympic games in the 93d Olympiad, or about the year 408 B. C. It appears, however, that the Greek heroes who celebrated the first Nemean games in honum of Archæmoros, were borne on bigæ. Bigæ were the chariots first used in the Circenian games; then triges, and afterwards quadrages. The moon, night, and the morning, are by mythologists supposed to be carried in bigæ, the fun in quadrages. Statutes in bigæ were at first only allowed to the gods, then to conquerors in the Grecian games; under the Roman emperors, the like statues, with bigæ, were decreed and granted to great and well-defering men, as a kind of half triumph, being erected in most public places of the city. Figures of bigæ were also struck on their coins, and those on which were a biga, and a Janus with a double face, were termed Bigati nummi.

The drivers of bigæ were called bigari; a marble bust of one Flosus, a bigarius, is still seen at Rome.

BIGA, or Bigata, in Writers of the Middle and Barbarous Age, a cart with two wheels, drawn often with one horfe. It was more frequently called birsa.

BIGA, in Geography, a town of Attic Turkey, in the province of Natolia, 16 miles, S. of Artaki.

BIGA, a river of North Wales, which joins the Severn in the county of Montgomery.

BIGAMY, a double marriage, or the possession of two wives at the same time. Among the ancient Romans, those convicted of bigamy were branded with a note of ignominy; and, in France, they were anciently punished with death. See Polygamy.

BIGAMY, in the Canon Law, is where a perfon either marries two virgins successively; or once marries a widow. The former kind of bigamy they call real, and the latter interpretation. Each of these the canons account impediments to be a clerk, or to hold a bishohip without a dispension: a point of discipline founded on that of St. Paul, "Let a bishop be the husband of one wife," 1 Tim. ch. iii. ver. 2. Apoll. Consil. 17, 18. By a canon of the council of Lyons, A. D. 1274, held under pope Gregory X. such were deemed "omnia privilegio clericali nudati et coercioni fori leucus addictioni." 6 Decretal. i. 12. This canon was adopted and explained in England by flat. 4 Edw. i. ft. 3. c. 5: and bigamy, in consequence of it, became no uncommon counter-plea to the claim of the benefit of clergy. M. 49 Edw. iii. 42. M. ii. Hen. iv. 11. 48. M. 13 Hen. iv. 6. Staunf. P. C. 134. The cognizance of the plea of bigamy was declared by flat. 18 Edw. iii. ft. 3. c. 2: to belong to the court of Christiun, like that of bardly. But by flat. 4 Edw. vi. c. 12. 5. 6. bigamy was declared to be no longer any impediment to the claim of clergy. See Dal. 21. Dyer, 201.

The Romanists make a third kind of bigamy, by interpretation; as, when a perfon in holy orders, o. that has taken on him some monastic order, marries. This the bishop can dispence withal, at least on some occasions.

There is also a kind of spiritual bigamy; as when a perfon holds two incompatible benefits, e. g. two bishohips, two vicariates, two canoniyes fab eodem telo, &c.

By the ecclesiastical law of England, a second marriage, while the former husband or wife is living, is simply void, and a mere nullity; nevertheless, the legislature has thought it just to make it felony, by reason of its being to great a violation of the public economy and decency of a well-ordered state. For the circumstances attending this crime, and the punishment of it, see Polygamy.

BIGARELLA, in Botany. See Prunus.

BIGARELLA, in Geography, a town of Italy, in the duchy of Mantua, 7 miles E.N.E. of Mantua.

BIGATI, in Antiquity, a kind of ancient Roman silver coins, on one side whereof was represented a biga, or chariot drawn by two horfes. The bigatus was properly the Roman demarius, whose impression, during the times of the common-wealth, was a chariot driven by Victorius, and drawn either by two horfes, or four, according to which it was either denominated bigatus, or quadratus. Bigati therefore were of different values, according to the species of demarius, &c. Several of those called consular medals are also bigati. In lieu of horfes, the chariot is represented on some bigati, as drawn by two deers, especially in the medals of the family of Axia; on those of the family of Creperine, by two hippopotami, who draw, or rather bear Neptune on their tails.

BIGBERRY, or Bigbury bay, in Geography, lies on the south coast of Devon, and is formed by the Bodi Tail on the east, and Stuke-point on the west, in the direction nearly of N.W. by W. The entrance into Plymouth found is round Stuke-point to the N.W.

BIG-BONE CREEK, an American creek in Woodford county, Kentucky, which falls into the Ohio from the east, in about N. lat. 39° 17'. W. long. 85° 54'. It is small, but has three branches; the north-westernmost interlocks with Bank Lick creek, which falls into Licking river. It is noticed on account of the large bones and falt licks in its vicinity.

BIG-BONE LICK lies on each side of the above-mentioned creek,
creek, a little below the junction of the two eastern branches, about 8 miles from the mouth of the creek. These, and also the other salt springs, in the western country, are called licks, because the earth about them is furrowed up in a very curious manner, by the buffaloes and deer which lick the earth, on account of the saline particles with which it is impregnated. A stream of brackish water runs through these licks, the foil of which is of a soft clay. The large bones found here, and in several other places near licks, and in low soft grounds, thought to belong to the Mammoth, have perplexed naturalists, in their investigation of the animals to which they belong. See Bones, fossil, and Mammoth.

BIGEMINATE LEAF, in Botany. See Leaf.

BIGGAR, in Ancient Geography, a town of Spain, which, according to Livy, was attacked by the Carthagi- ninians, because it was allied to the Romans, but it was suc- ceeded by Scipio. Ptolemy assigns it to the Bacthini, in Tarragonensis.

BIGERRONEs, a people of Gaul, so called by Cæsar, and denominated by Pliny, Biggeri; and by Antonius, Biggeritani. M. d'Anville places them at the foot of the Pyrénées, to the west of the Convent. Their name exits in that of Bigorre.

BIGGAR, the name of a town and parish of Lanarkshire, in Scotland. The parish includes an area of land, measuring about 6 miles, by 35, in transverse diameter. The surface is partly hilly, and is appropriated, in nearly equal parts, to pasture and arable. The population of the parish in 1790 was 937, but this was 161 less than when a return was made 36 years anterior. From the improved state of the roads, and of agriculture, it was found to contain 1216 persons in the year 1800. The town of Biggar has 389 inhabitants. Here are three annual fairs. At the west end of the parish are the vestiges of a large tumulus, and three encampments. Tradition says, that a desperate battle was fought here between the Scots under fir. William Wallace, and the English army, when the slaughter was very great. Sir John Sinclair's Statistical History of Scotland.

BIGGE, a river of Germany, which runs into the Lena, 3 miles north of Allendorn, in the duchy of Weptphalia.

BIGGEL, in Zoology, Anilope Tragocamelus of Gmelin, in Mandellii. it.

BIGGLESWADE, in Geography, is a large improving town of Bedfordshire, England, pleasantly situated in a fertile valley, on the eastern bank of the river Ivel. This has been rendered navigable to the town by act of parliament, and considerable quantities of coals, timber, corn, and some other commodities, are brought by this channel. An extensive weekly market, and four annual fairs, also attract various merchandize to the town. The manor belongs to the king, and the parish includes, besides the towns, the small hamlets of Stretton and Holme. These together contain an annual population of 1650 persons, who occupy 301 houses. The church, an ancient and strong edifice, was partly built in the year 1200, and was formerly collegiate. The inhabitants, being free tenants, have all equal rights in the church. In this town are two charity-schools; also a Baptist meeting-house; and being seated on a great public road, it contains several large inns. Biggleswade suffered very materially by fire, which happened on the 16th of June 1785. In a few hours 150 dwelling-houses were reduced to ashes, besides some malt houses, corn-chambers, &c. which were situated round the market-place, near the centre of the town. The damages sustained by this fire were estimated at 24,000l. Since the conflagration several new houses have been erected, and the town has assumed a more modern and improved appearance. On the 25th of February 1792, a shock of an earthquake greatly alarmed the inhabitants of this place, and its concussion was so powerful as to throw down some old houses. It lasted several seconds, and was found to extend northward into Yorkshire, and towards the sea-coast of Lincolnshire. In the manner of Stratton, a short distance south-east of Biggleswade, as a cart was ploughing the land, he discovered a yellow earthen pot, which was found to contain about 300 gold coins of Henry VI. They were nearly the size of half crown pieces each, but being very thin did not equal the weight of a guinea.

About 4 miles west of Biggleswade, are the remains of Warden-abbey, which was formerly a very extensive and considerable foundation. It was founded in 1135, by Walter Espec, for Cillerian monks; and at the dissolution its revenues were valued at 358l. 16s. 6d. per annum. England's Itinerary. Camden's Britannia. Beauties of England and Wales, vol. i.

BIGGS BAY, lies on the south side of Jamaica, and to the east of New York. It is the most southerly point of the island.

BIG-HILL CREEK, an American creek, which runs west into the Kalkakias river, 25 miles below Beaver creek, 17 miles above Blind creek, and 26 northerly from the mouth of Kalkakias.

BIGGIN SWAMP.—See Santee River.

BIGH, in the Sea Language, denotes any part of a rope, as it is taken compassing, coiled up; or the double part of a rope, when it is folded, in contradistinction to the end. It signifies also a small bay between two points of land.

BIGIN, in Geography, a town of Sicily, in the valley of Mazara, 10 miles east of Mazara.

BIGIS, in Ancient Geography, a town of Sicily, placed by Ptolemy in Drangiana.

BIGLA, in Geography, a town of Lithuania, in the plains of Wilna, 40 miles E. N. E. of Wilcomierz, near a lake from which the river Drina issues. N. lat. 55° 26'. E. long. 20° 24'.

BIGLOBATUS, in Entomology, a species of Cerac- tis, found at the Cape of Good Hope. This is of a black colour, with a camalculated snout; thorax globose, very rough with punctured dots; wing- cafes with febaceous dots, and two rows of tubercles on each side. Sparr. Nov. Act. Stockh.

BIGLUMIS, a species of vesspa, with four dots on the scutel; margin of the abdominal segments white, with two white dots on the second. Gmelin. Teneo Rupferis of Linn. Syfl. Nat. is deemed a variety of this kind.

BIGNAN, in Geography, a town of France, in the department of Morbihan, and chief place of a canton in the district of Josselin, 3 leagues S. W. of Josselin.

BIGNI, in Consolagens, a name under which Adanson describes Voluta Fringe of Gmelin.

BIGNON, Jeron., in Biography, was born at Paris in 1592, and educated by his father, who was an advocate in the parliament of Paris, and dilligently by his learning and character. Having made a surprising progress under his father's tuition, he was placed, about the age of ten years, near the person of the young prince of Condé, and about this period published, "A Description of the Holy Land," more accurate than any extant. In 1604, he composed for the use of the young duke of Vendome, a "Treatise on Roman Antiquities." These works were compilations; but his work on the "Election of the Popes," said to be composed in his fourteenth year, but not published till 1608, was of a more original kind, and displayed a degree of erudition that surprised the most learned men of the age. Bignon
BIGNON

BIGNONIA, so named by Tournefort, in honour of the abbé Bignon, Eng. trumpet flower, or scarlet jasmine, in Botany. Lin. gen. n. 759. Reich. 817. Schreb. 1018. Tourn. 72. Juli. 139. Gartn. t. 52. Cháis and Orédes, didymaria angiospermia. Nat. Ord. Peronanthes. Bignonis. Jüf. Gen. char. Cal. perianth one-leaved, erect, cup-form, five-cl. Cor. monopetalous, campanulate; tube very small, the length of the calyx; throat very long, ventricose beneath, oblong-campanulate; border five-parted, the two upper divisions reflex, lower patent. Stam. filaments four, subulate, shorter than the corolla; two longer than the other two; another reflex, oblong, as it were doubled. Fil. germ oblong; fyle filiform, situation and form of the flaments; stigma capitulate. P. s. Silique two-celled, two-valved; partition membranaceous, parallel, thickened, at the futures. Seeds very many, imbricate, compressed, membrane-winged on both sides. Obs. Catalpa has only two perfect flaments, and three very small rudiments of flaments, with a five-leaved calyx. Four, however, and even all five perfect, have been observed by Cyrillus. The form of the siliqua in this genus is indeterminate. The seeds are always winged, though some on one side only.

El. Cháis. Cal. five-cl., cup-form. Cor. throat bell-


Species, 1. B. Catalpa, common Catalpa tree. Lin. spc. 865. Reich. 3. 155. Hort. cliff. 857. 1. Ait. Hort. Kew. 2. 346. Duham. Arb. t. 104. t. 41. Cataeb. Car. t. 49. t. 29. "Leaves simple, cortate; item erect; seeds winged with membrane." A deciduous tree, with an upright stem, covered with a smooth brown bark, 30 or 40 feet high; with lateral branches, ovate leaves placed opposite at every joint, flowers in branching panicles towards the end of the branches, of a dirty white colour, with a few purple spots, and faint fringes of yellow on their inflorescence, which flowers are succeeded by long taper pods not yet produced in England. Found by Mr. Catesby growing naturally on the back of South Carolina, brought into England about the year 1726, and now not uncommon in our nurseries and plantations. In our climate the leaves come out very late; and the tree requires a sheltered situation. It flowers in August, and is known in the nurseries by its Indian name "Catalpa." The branches dye wool a kind of cinnamon colour. Thumbé mentions that the Japonese lay the leaves on parts of the body affected with pains, on a hypothesis that they are beneficial to the nerves; and that a decoction of the pods is serviceable in the asthma. 2. B. tomentifolia. Lin. Syl. 563. Thumb. Jap. 252. "Leaves simple, cortate, tomentose beneath; flowers axillary, panicle." A native of Japan. 3. B. semperflorens, Carolina yellow jasmine, Lin. Spec. 869. Reich. 3. 155. Gellumnum. Park. 1456. n. 5. Rauhill. 1769. Cataeb. Car. t. 1. t. 53. Syringa. Pluk. Alm. t. 112. f. 5. "Leaves simple, lanceolate, firn twisting." Rising with slender stalks, that twist themselves round the neighbouring plants, and mount to a considerabe height, with flage opposite leaves at every joint, that remain green throughout the year; growing naturally in South Carolina, where it spreads over the edges, and at the same time unknown to the present situation, that in the flowering, perfume the air to a great distance; and also found in some parts of Virginia; called yellow jasmine, probably from the sweet odour of its flowers. Cultivated in 1695, in Kew garden, by Parkinson. 4. B. angustifolia. Lin. Spec. 869. Reich. 3. 156. Apocyno affine. Sloan. jan. 1. 268. Clematis. Pluk. Amer. t. 94. Pluk. Alm. t. 163. f. 2. "Leaves conjugate; tendril very short, bowed, three-parted." A native of the West Indies. 5. B. equinocialis. Lin. Spec. 869. Reich. 3. 156. Stubb. Hort. 2. t. 85. Plum. Spec. 5. i. 55. f. 1. "Leaves conjugate, cirrhose; leaflets ovate and lanceolate; peduncles two-flowered; figuques linear." Received by Mr. Millar from La Vera Cruz, in New Spain. 6. B. paniculata. Lin. Spec. 869. Syll. 563. Reich. 3. 156. Jacq. amer. t. 116. Pluk. 91. t. 175. Plum. Spec. 5. i. 56. f. 1. "Leaves conjugate, cirrhose; leaflets cordate-ovate; flowers racemose; peduncles three-flowered." Sent to Mr. Miller from La Vera Cruz, by Dr. Hufdourn. Observed about Carthagena by Jacquin. 7. B. crassigera. Lin. Spec. 869. Reich. 3. 157. Vis. cliff. 69. Hort. cliff. 317. 3. Gron. virg. t. 73. 255. Plum. spec. 48. t. 58. Plundo-Apocynum. Mor. cliff. 3. 612. n. 6. f. 15. t. 3. f. 16. "Leaves conjugate, cirrhose; leaflets cortate; item muricate;" deriving its trivial name from a section of the item which represents a cros. Sent to Mr. Miller from Campeachy. 8. B. capreolata, four-leaved trumpet-flower. Lin. Spec. 872. Syll. 563. Reich. 3. 157. Vis. cliff. 59. Hort. cliff. 317. Brey. i. 33. t. 25. Duham. Arb. 1. 104. t. 46. Cataeb. Car. t. 2. 82. Clematis. Bocc. ficc. t. 31. t. 15. f. 3. Zan. cliff. 74. t. 2. ed. 2. 49. t. 33. Rauh. hist. 1259. "Leaves conjugate, cirrhose; leaflets cortate-lanceolate; bottom-simples fimbriate." Sent to Mr. Miller from Campeachy. A native of Virginia and Carolina; and cultivated in
in Kew garden in 1730. 9. B. pubescens. Lin. Spec. 870. Reich. 3. 157. “Leaves conjugate, cymose; leaflets cor- date-ovate, pubescent beneath.” Growing naturally in Virginia, and several other parts of America. 10. B. tripethylla, three-leaved trumpet-flower. Lin. Spec. 870. Reich. 3. 157. “Leaves ternate; leaflets ovate, acuminate; stem shrubby, erect.” Sent to Mr. Miller from La Vera Cruz, by Dr. Houftonn. 11. B. pentaphylla, hairy five-leaved trumpet-flower. Lin. Spec. 870. Reich. 3. 158. Hort. cliff. 497. o. “Leaves digitate; leaflets quite entire, ob- ovate.” Sent to Mr. Miller from Jamaica, by Dr. Houftonn; and introduced into Kew garden before 1733. 12. B. Leucosylen, smooth five-leaved trumpet-flower, white-wood, or tulip-flower. Lin. Spec. 870. Reich. 3. 158. Swartz Obs. 233. Plut. alm. t. 220. f. 4. Brown jam. 263. n. 1. Sloan. jam. 2. 62. n. 47. Rall. dndr. 114. 2. “Leaves digitate; leaflets quite entire, ovate, acuminate.” According to Sir Hans Sloane, this tree is as large as any in the island of Jamaica, having a large straight trunk covered with a smooth whitish bark, and a very hard white wood. According to Browne, it grows in a kind soil to a large size, and is considered as good timber-wood; but when its growth is not luxuriant, fit only for smaller and subordinate imple- ments. Its juice and tender buds are said to be an antidote to the poisonous juice of the manchineel. Mr. Miller says, that it rises with an upright fleun to the height of 40 feet, in the natural country of its growth; and that the seeds, dispersed by the winds to neighbouring lands, supply plants in great plenty. Cultivated by Mr. Miller in Kew garden, in 1759; and received by him from Barbadoes under the denomination of “white wood.” 13. B. radiana, ray-leaved trumpet-flower. Lin. Spec. 871. Reich. 3. 158. Feu. peruv. 2. 731. t. 22. “Leaves digitate; leaflets pinnatifid.” Stem three inches high; corolla pale yellow, with red dots. A native of Peru, in very dry land. 14. B. radic- centis, rooting or air-leaved trumpet-flower. Lin. Spec. 871. Reich. 3. 158. Hort. cliff. 317. 4. Upf. 178. Gron. virgin. 73. 94. Duham. arb. 1. 103. 1. Saub. hort. 2. t. 84. Pecud gellifem num filiufquom. Riv. non. 101. Pecud- Apocynum. Mor. hift. 3. 612. n. 1. i. 15. t. 3. f. 1. Park. 1679. and 385. n. 6. Gellifemnum hederaceum Indicum. Corn. can. t. 103. Rall. hift. 1678. B. fraxinii fol. cocineo fil. minore. Catef. cafr. i. 1. 65. Mill. fig. 43. t. 65. Duham. arb. 103. 2. “Leaves pinnate; leaflets gilled; stem with rooting joints.” Stems rough, branches trailing, fallingen by the roots, issuing from their joints, to the trees in their natural place of growth, and climbing to a great height; in Europe, where it is generally planted against walls, flirking into the mortar of the joints, so as to support the branches, and rising to the height of 40 or 50 feet; flowers produced at the ends of the filaments of the same year, in large bunches, with long dwelling tubes, shaped somewhat like a trumpet, unless the plant has the appellation of “trumpet-flower,” corolla of an orange colour, and opening at the beginning of August. Cultivated in Kew garden in 1640. The seeds of B. were sent from Carolina in 1724, by Mr. Catefby; and since that time many plants have been raised in England, by seeds sent from that country. 15. B. flafa, branching-flowered trumpet-flower. Lin. Spec. 871. Reich. 3. 139. Jacq. Amer. piéf. 91. t. 176. Brown. jam. 262. 3. Plum. Spec. 5. ic. 54. Sloan. jam. 2. 63. n. 49. B. fruticifera. Mill. dic. n. 3. “Leaves pinnate; leaflets bright; stem erect; firm; flowers raceme.” An upright shrub from four to eight feet in height; flowers yellow, with red lines on the inside of the tube; filiques half a foot long, with winged seeds. A native of all the fugar islands in the West Indies, chiefly in a dry, rocky, or gravelly soil. Mr. Miller says, that he received this sort first in 1729, from La Vera Cruz, where Dr. Houftoun found it in great plenty; since which time he obtained the seed from the island of Ber- muda, by the title of “candle-wood.” 16. B. grandiflora. Lin. Syll. 564. Thunb. jep. 233. Kempf. ic. fol. 21. “Leaves pinnate; leaflets ovate, acuminate, fertile; stem twining, calyx fimbriatifolii.” Stem shrubby, climbing, four-cornered; calyx five-cornered; corolla purple, the size of a rose: differing from the radicans in having a stem not at all rooting, a larger flower, and a fimbriifolii calyx. A native of Japan. 17. B. chelonaider. Lin. Syll. 564. Suppl. 282. Padri. Rhed. Mal. 6. 47. t. 26. “Leaves unequaly pinnate; leaflets ovate, quite entire, acuminate, pubescent; corollas bearded, with the rudiment of a fifth filamen.” A large tree, with a whitish ash-coloured bark; leaves spreading, petioled; panicle terminating; pedicels opposite, dichotomous; flowers solitary, from the divisions; calyx hoary; border of the corolla a little arched, rough with hairs, red, five-cleft; the two upper segments yellow, with red dots; lower segments rough with hairs, curved at the edge, disk waved, white, veins red, throat rough with hairs; the rudiment of a fifth filamen, inserted in the tube of the corolla, barren; filiques linear, flat, bent, flesched. The fresh flowers, immerced in water, give it a pleasant odour; and in the East Indies, of which it is a native, they sprinkle it over the temples in a morning, to correct the flagrant air. 18. B. fndec. Lin. Syll. 564. Suppl. 283. Nür Pongelhi. Rhed. Mal. 6. 53. t. 29. “Leaves unequaly pinnate; leaflets ovate, rough with hairs; calyx one-leaved, spotted; corolla falve-shaped.” A large tree, differing in the structure of the flower from the other species, but having didymian flowers, and a pod filled with winged seeds. It is evidently of this genus. The timber is ash- coloured, or red, smooth, and much used for a variety of utensils in India. A native of Malabar, Java, and Ceylon, in woods near waters. 19. B. peruviana. Lin. Spec. 871. Reich. 3. 159. Hort. cliff. 317. 5. “Leaves compound; leaflets gilled; stem with tendrils at the joints.” A native of America. 20. B. indica, Indian trumpet-flower. Lin. Spec. 871. Reich. 3. 159. f. zeyl. 236. Lour. cochinch. 379. Palega pajauel. Rhed. Mal. 11. p. 77. t. 43. Rall. hift. 1741. B. pajani. Rall. 79. t. 44. Rall. hift. 1741. n. 2. “Leaves bipinnate; leaflets quite entire, ovate, acuminate.” A large tree with ascending branches. A na- tive of the East Indies, and Cochinchina. Introduced in 1795 by Dr. Solander. A variety occurs near Mozambique, in Africa. 21. B. cerulea. Lin. Spec. 872. Reich. 3. 160. Catef. cafr. i. 1. 42. “Leaves bipinnate; leaflets lanceolate, entire.” Grows naturally in the Bahama islands, whence Mr. Catefby sent the seeds, in 1724; and many of the plants were raised in the gardens near London. In the country where it grows naturally, it rises to the height of 20 feet. 22. B. longiflora, wave-leaved trumpet-flower. Ait. Hort. Kew. 2. 347. Jacq. Amer. 182. t. 176. f. 78. Swartz Prod. 91. Brown. jam. 262. 4. Plum. ic. 47. t. 57. B. Quercus Lamark. Encycl. t. 417. “Leaves simple, oblong, acuminate; stem erect; seeds woolly.” An elegant, upright tree, 40 feet high and upwards. A native of the West Indies; cultivated and growing luxuriantly in many parts of Jamaica, especially in the low lands and fa- vannahs, where it grows to a considerable size, and is con- sidered as an excellent timber-tree. Its numerous flowers, and slender filiques, add a peculiar grace to its growth. In Jamaica it is known by the name of “French oak”; and in the French West Indies it is called “Chêne noir.” 23. B. cebinata. Gratt. fruct. t. 240. t. 52. Jacq. Amer. 183. t. 176. f. 52. Aublet. Guian. 2. 648. t. 263, 264.
Swartz prodr. 91. "Climbing; lower leaves pinnate; upper bipinnate, cuneate; fruit exiniate." A rambling shrub climbing to the tops of trees by its very long and numerous branches. A native of the West Indies, Carthagea, and Guiana. 24. B. parvifolia, Lour. Cochinch. 379. "Leaves bipinnate; flowers five, with two anthers in each; calyx flesh-coloured, five-toothed." A middle-sized tree, with ascending branches. A native of Cochinchina, near rivers. Loreauio has another species under the name of B. longiflora, which is a native of Cochinchina, by rivers, and which is not the B. longiflora of Jacquin (N° 221); agreeing, according to Loreauio, with the "ligum equinum" of Rumphiis (vol. iii. p. 731. 462.), or B. fustacca of the younger Linnaeus in the length and form of the corolla, but not in the pinnatifid calyx and pinnate leaves. But Reclus observes, that Rumphiis's plant is not the same with Linnaeus's, and it is very different from the "Nur-Pungedon" of the Hortus Malabaricus. Loreauio also remarks, that the three Asiatic species which he has described can by no means be adapted to the generic character formed by Linnaeus from the American species, except in the fruit; and even that is not always two-celled in the Asiatic species.


The Bigoniois are trees or shrubs, inhabitants of the hot climates, of the East and West Indies, and eminently beautiful. The leaves are opposite; in some species unilaterally pinnate or pinnate; in others, conjugate, with a two-leaved petiole between the leaflets, frequently furnished with a tenderil for climbing. Flowers in panicles, large and handsome, of various colours, red, blue, yellow, or white. The calyx should be observed, whether it be simple or double; the corolla, whether it be regular or irregular; the filaments, whether they be fertile or barren; the fruit, whether it be bony or capsular, in form of a sphaera, or ovate. There are many species, particularly from Brazil, not yet sufficiently known to admit of arrangement under this genus. B. fersinervilus does not belong to this genus, says Mr. Martyn, but to that of elliaceae.

Propagation and Cultur. — These are exotic trees or shrubs, and may be raised from seeds sown on a moderate hot-bed, in the spring. They should be soon moved to the open air, in order that their being drawn up weak. They may be also increased by cuttings, and some of them by layers. The seeds of the common Catalpa tree are annually brought over from South Carolina. The seedlings should be placed in a coldframe, till autumn, and then placed under a summer frame, to guard them from the winter frosts; exposing them in mild weather to the open air. In the following spring they should be taken out of the pots, and planted in a nursery-bed in a warm situation, where they may remain two years, and then planted where they are to remain. This tree may be also propagated by cuttings which, in the spring, should be planted in pots, and plunged into a moderate hot-bed, shading them from the mid-day sun, and occasionally, but sparingly, refreshing them with water. In about six weeks, when they have taken root, and made shoots above, they should have plenty of air, and accustom the fear being exposed to the open air; and afterwards treated like the feeding plants. The Catalpa delights in a rich moil soil, where, in a few years, it will produce flowers. The plants of the third species, not bearing cold, when young, should be sheltered in winter, planted against a warm wall, and protected from frosts by coverings of mats, and by tan covering the soil about their roots. The fourth and fifth species will live in the open air, when planted against a wall with a south aspect, and sheltered in a very severe frost. The sixth, seventh, eighth, ninth, tenth, and twelfth species, are tender, and will not thrive in this country out of the hothouse. If the ninth species be planted in the full ground against a wall, the roots should be covered in the autumn with some old tanners' bark, to keep out the frosts in winter; and in very severe frosts they should be covered with mat. The twelfth will take root from cuttings planted during summer in pots, or plunged into a hothouse: it has flowered several years in the Chelsea garden, in August. The fourteenth is so hardy as to thrive in the open air; but the trailing branches should be supported; and as they spread much and rise to a great height, they will serve to cover single buildings; and also trained against the fronts of trees, they make a fine appearance when in flower. It is propagated by seeds, but the young plants thus obtained will not flower in less than seven or eight years; and therefore those propagated by cuttings or layers are most esteemed, because they will flower in two or three years after planting. The necessary culture for these plants, after they are established, is to cut away all the small weak shoots of the former year in winter, and shorten the strong ones to the length of about two feet; and thus young shoots will be obtained for flowering in the following summer. These plants are of long duration; some of them remain vigorous after 60 years, and produce plenty of flowers every season. The fifteen species is propagated by seeds sown on a hot-bed, and by transplanting the plants into separate small pots, filled with light earth, and plunged into a trent hot-bed; by removing them in autumn into the hothouse, giving them but little water during winter, and in summer refreshing them with it sparingly; and they should remain constantly in the hothouse, and be treated like other tender plants from the hot countries. The third year from seed they will flower; but they do not produce seeds in England. The other forts have not been cultivated in England. Martyn.

BIGORNO, in Geography, a town of Contica.

BIGORRE, a country of France, in the province of Guines before the revolution, but now forming a part of the department of the Upper Pyrenees. Its capital was Tarbes. It is bounded on the N. E. by Aragon and the country of the four valleys, Nubuzan and Alarca; on the south, by the Pyrenees; and by Bear, on the west. It has been sometimes divided into the country of Ruffa, the Plain, and the Vallado, and elimated at 16 leagues in length from north to south, and in its greatest breadth at 7 leagues. From its general situation, this country might be expected to enjoy the same mild climate that is experienced in the neighbouring provinces, under the same latitude; but from local circumstances it is very different. The Pyrenees intercept the warmth of the more southern country of Spain; while, from its elevated situation, it is exposed to the chilling blasts of the north. On this account Bigorre is deprived of many fruits and vegetables, such as the orange and olive; however, the laurel, fig-tree, and myrtle, are not injured by the climate. The air of the mountains is cold and chilling, but that of the plains and
vallies more mild and salubrious. This country produces wood in considerable quantities, excellent wine, rye, barley, and miller; but not much wheat. It has good pastures, quarries of marble, and medicinal springs. The mountains of Bigorre consist of schist, marble, and granite. See Pyrenees. The inhabitants of this district posses a peculiar and characteristic phygsognomy, in which they all resemble one another; they are healthy and active, lively and cheerful, and unite impetuous courage with strength and agility. The impetuosity of their temper renders their language rapid, passionate, and full of protestations; and they sometime sink the voice an octave below the natural key, that they may suddenly raise it to the sharpest note. Their ideas abound with imagery, and their gestures are quick and violent. They are distinguished by their generality and beneficence. They practice the ring from their infancy, and can draw a bow before they speak; and those persons are regarded as the most accomplished, who are most skilled in leaping, riding, and throwing the bar. The education of the Bigorrets, who are not husbandmen, is conducted with a view to the church; and they boast of many eminent persons in science and literature.

BIGOT, a person fondly obdurate, or perversely attached to an opinion. The word is formed from the German bey, and Got, or the English by-God. Camden relates that the Normans were first called Bigutii, on occasion of their duke Rollo; who receiving Gizia, daughter of king Charles, in marriage, and with her the investiture of the dukedom, refused to give the king's foot in token of submission, unless he would hold it out for that purpose, and being urged to it by those present, answered haughtily, "No, by God," wherein the king, turning about, called him Bigot; which name failed from him to his people.

BIGOT, Emeric, in Biography, an eminent promoter of literature, was born at Rouen in 1626; and forming an early attachment to literature, he declined all public business, and employed himself in augmenting a large library bequeathed to him by his father, and in correspondence and conversation with persons of learning. Few persons conciliated, by the modesty of his temper, by the friendship and familiarity of his manners, and by his love of peace and tranquility, have maintained to his greater number of friends, who respected and esteemed him. In various parts of Europe, through which he travelled, he formed connections with literary men; but his most intimate friends of this description were Menage and Nicholas Heinius. Although he distinguished himself by aiding others in their literary performances, the only work he published in his own name was the Greek text of Palladius's life of St. Chrysofolom, found in the grand duke's library at Florence, to which he annexed a Latin translation. Having entitled his valuable library on his family, in order to prevent its dispersion, he died at Rouen in 1689. However, notwithstanding his precaution, his library was publicly sold at Paris in 1706. Gen. Diet.

BIGOT, in Italian bigonius, in Commerce, is used to denote a Venetian liquid measure, containing the fourth part of the ampulla, or half the boot.

BIG Rock, in Geography, a large rock on the S.E. bank of Au Vaze river in America; about 3 miles N.E. from its mouth in the Missippi, and about 8 miles S.E. from cape St. Antonio on that river.

Big Rock Branch, the north-eastern head branch of Alleghany river. The branch called Big Hole Town joins it, and forms the Alleghany, 85 miles N.E. from and above Venango fort.

BIG Salt lick, a garrison in the state of Tennessie, near the Salt lick, on Cumberland river, 115 miles from Knoxville; 80 from S.W. point on Clinch river, 32 from Bigelock, and 63 from Nashvile.

Big Sandy River, or Totteray, rises near the source of Cumberland river, and separating Virginia from Kentucky, discharges itself into the Ohio, opposite to the French purchase of Galloipolis, in about lat. 33° 30'. Vancouver's and Harmon's forts stand on this river. On its banks are several fort licks and springs. Little Sandy is a short small river, which falls into the Ohio, about 20 miles west of Big Sandy river, in the county of Mason, Kentucky.

BIGUABA, a town of North Africa, seated on the river Rio Grande. N. lat. 11° 15'. W. long. 13° 35'.

BIGUTTATA, a genus in Entomology, a species of Silpha, met with at Upsal. This is totally ferruginous, with a pale line and spot on the wing-cases. Thunberg. Nov. Act. Stockh.

BIGUTTATA, a species of Cassida, with a yellow thorax; reddish wing-cases; black margin, and two yellow spots. Fabricius. This insect inhabits Cayenne.

BIGUTTATA, a species of Coccinella, described by Fabricius. It is rufous, with two yellow spots. The country is unknown. Size small; thorax glossy and black, with the fides yellow.

BIGUTTATA, a species of Cantharis, found in gardens in Europe. The thorax is black in the middle; wing-cases short, black, and yellow at the tip. Linan, F. Suec. Fabricius. This is Teleborus nigri, femoribus flavis, elytris apice lateis de Geer.

BIGUTTATA, a species of Buprestis, with very entire, linear, green wing-cases, with a white dot; abdomen blue, with three white dots. Fabricius, &c. Inhabits England.

BIGUTTATA, a species of Cicada (Cerops), of a black colour, spotted with yellow; wing-cases brown, with a white marginal spot. Inhabits Germany. Fabricius.

BIGUTTATA, a species of Cicada (Ranaeta Fabr.) that is found in Europe. It is black, with a patch of finguicuous red on each side of the thorax. Fabricius.

BIGUTTATA, a species of Vespa, of the small fize, that inhabits China. It is black, and spotted with yellow; margin of the segments, and two dots of yellow on the second one. Fabricius.

BIGUTTATA, a species of Scolia, of a black colour, with two transverse white dots on the abdomen; wings black. A small species, and inhabits Spain. Fabricius.

BIGUTTATOR, a species of Ichneumon, described by Thunberg. It is black, with two dots on the feutel. Found at Upsal.

BIGUTTATUS, a species of Curculio, that is found in Germany. It is black, with elevated dots on the wing-cases; abdomen and posterior legs yellow. Fabricius.

BIGUTTATUS, a species of Cryptocoepalus, of a black colour, with the head, tip of the wing-cases, and legs yellow. Gmelin. A native of Anhria.

BIGUTTATUS, a species of Carabus, that lives under the bark of trees in Sweden, and is described by Thunberg. The head is roundish and brassy; wing-cases black, with a pale spot at the apex.

BIGUTTATUS, a species of Dytciscus, described by Lamæcus as a native of Europe. This is black; legs, end of the abdomen, antennae, mouth, two dots between the eyes, thorax, and wing-cases tattaceous, the latter spotted with brown; in the middle of the thorax two black spots.
BIDUTAT, a species of Staphylinus, that inhabits some shores of the Baltic sea. It is of a black colour, with a fulvous spot on each of the wing-cases. Limn. Fabr. &c.

BICUTTATUS, a species of Cimex (Retundatus), described by Linnaeus in his Fauna Suecica, by Scopoli, &c. It is black, with all the margins white, and a white spot on the wing-cases.

BICUTULUS, a species of Gryllus (Locyopa), with a cruciate thorax; wing-cases clouded, and marked with an oblong white spot near the tip. Limn. Fn. Suec. &c. This is Accidium bicutulums of Degeer. Very common on some barren lands in the north of Europe.

BIHACS, BISATZ, BISHT, or VIHITZ, in Geography, a town of Crisia, seated on the river Umon, belonging to the Turks; 60 miles south of Carlstadt, and 180 west of Belgrade. N. lat. 44° 47'. E. long. 16° 20'.

BIHAI, in Botany. See Strelitzia.

BIHAMATA, in Entomology, a species of Hispa, of an oblong, depressed shape, that inhabits India. It is specifically described as being unarmed, black, spotted with red; shells truncated and hooked. Gmelin.

BIHAMATZ, a species of Formica, found in the island of Joanna, having four spines on the thorax, and two curved ones on the petiole female. Fabricius, &c.

BIHAR, in Geography, an ancient town of Hungary, giving name to a district, in which are also Debretzen, Great Varadein, &c.

BIHOREAU, in Ornithology, the name of Ardea myctea- raxus, or Night heron, in Buffon's Hill. Birds. Temelle de Bihoreau of Buffon, is Ardea grisea; and Bihoreau de Cay nue of Buff. is Ardea cayennensis of Gmelin.

BIHRI, in Geography, a town of Perlia, in the country of Larifan, in the route from Ipahan to Ornus, 30 miles N.W. of Lar.

BIJNAGUR. See Binsagur.

BIJORE, called also Bejaur and Bejour, the Bazira of Alexander, a province of Hindoostan, bounded on the south by Pakhurwar, on the north by Kutore, on the east by Sewad and Bejore, which are separated from it by the Penjorek, and on the west by Guznoorgul. This province, according to the dimensions flated in the Ayen Achearee (vol. ii. p. 192, &c.) extends 25 coffes north and south, and 10 caff and west; distant about 20 coffes beyond the Cabul river, and on its western extreme; about 30 coffes from the Indus. Bijore, as well as Sewad, is very mountainous, and abounds with paffes and strong situations; so that its inhabitants have not only held themselves generally independent of the Mogul emperors, but have occasionally made very ferious inroads into their territories. In this province there is at this day a tribe of Afghans, denominated Yuzuf-zyes, which traces its origin to certain persons left there by Alexander the Great, when he passed through this country. Both Abul Pazil, the author of the Ayen Achearee, and Soojan Raas, an eastern historian of good reputation, report this tradition without any material alteration. The latter, indeed, adds that these Europeans, if we may call them so, continued to prefer that ascendency over their neighbours which their ancestors may be supposed to have possessed, when they first settled here. Although we should reject this pedegree as fabulous, yet the bare claim argues the belief of the natives, for which there must have been some foundation, that Alexander not only conquered Bijore, but also transferred that conquest to some of his own countrymen. The people of Bijore had likewise an high idea of Alexander's extensive authority; and they denominated him the "Two-horned," agreeably to the striking emblem of power in all the eastern languages. (Ayen Achearee, xi. 194.) These Yuzuf-zyes, says Mahomed Cazim, quitted their ancient habitations between Ghizni and Candahar, and after various unsuccessful attempts to obtain a settlement in Cabul, at the time when Mirza Ulug Beig, furnished Cabulees, and that kingdom, finally established themselves in Sewad and Bijore; which at this period were governed by a dynasty of princes styled "Sultani," who derived their lineage from Alexander the Great. The Yuzuf-zyes possess, in addition to Sewad and Bijore, the tracts situated between these provinces, and the rivers of Cabul and Indus; the greatest part of which is described as a desert in the Ayen Achearee, but by Bernouilli as a forest. In the time of Achar, Zine Khan was sent to chastise them; and he overran their whole territory, and even penetrated to the borders of Cashgar, and took the strong fort of Kulhal, or Guhal, seated on a mountain 17 marches north of Bijore. About the year 1670, Aurungzebe found it necessary to chastise these Yuzuf-zyes; since which period the return of Nadir-Shah, in 1739, again brought them into notice. To him they appeared formidable; but he reduced them to submission; and if they really engaged to supply his army with 40,000 men, the tribe male have increased since the time of Achar, when Bijore contained only 39,000 and Sewad 40,000 families. Kennell's Mem. p. 159, &c.

BIJORE, the capital of the above-described province, situated about 6 marches, or about 66 geographical miles, from Nilab or Attock, and at 50 of the same miles, north a little east into Pailhawur, and at the same dilinace east a little north from Iblahabad. N. lat. 34° 7'. E. long. 70° 44'.

BI JORE, the name of a river which rises in the mountains, N.E. of Bijore, and passing by it, forms a junction with the Penjorekhol, Sewad, and Kamal, and falls into the Nilab, or Sinde, at Attock.

BIISK, a town and district of Siberia, in the government of Kolyvan, seated on the river Bi, or Bis, which, by uniting with the Katunia, forms the river Ob; 150 miles S.S.E. of Kolyvan. N. lat. 53° 31'. E. long. 84° 14'.

BIJUGUM, Folium, in Botany, denotes a winged leaf, bearing two pair of foliula.

BIKULAKOVA, in Geography, a town of Ruffia, in the government of Ufa, on the river Ik, 80 miles N.E. of Orenburg.

BIKILLAM, or Beckalen, a small island in the Red sea, 8 leagues from the coast of Arabia. N. lat. 16°. E. long. 43° 25'.

BIKOU, a town of Poland, in the palatinate of Bracalw, 50 miles north of Bracalw.

BILA, a river of Bohemia, which runs into the Moldaw near Aulig.

BILA, Al, a town of Bohemia, in the circle of Leitmeritz, 10 miles W.S.W. of Kamnitz.

BILANA, or Bilbana, in Ancient Geography, a town of Arabia Felix. Ptolemy.

BILANDER, in Geography, a town of Bohemia, in the circle of Curdimum, 5 miles west of Chrudim.

BILANCIS Deferendis, in Lapo, a writ directed to a corporation, for the carrying of weights to such a harn, there to weigh the wool, which persons by our ancient laws were licenced to transport. Reg. Oriq. 1720.

BILANDER, in Navigation, a small merchant-ship with two masts; distinguished from other vessels of the same kind by the form of the main-ail, which resembles a frette-foil. The head is bent to a yard, similar to the mizen-yard of a ship, and hangs to the main-mast, as a ship's does to the mizen-mast. This method of rigging has proved inconvenient, and is now seldom used, except by the Dutch.
BILANUS, in Botany. See CRATERA.

BILARIUS, Porus. See BILARII Por.

BILATERAL CONJUNCTION, denotes kinship, or kindred, on both sides; that of the father as well as mother.

Suck is the relation of brothers, sisters. Bilateral stands contradistinguished to unilateral.

BILBA, in Ancient Geography, a town of Aia, in Babylonia. PoIemcy.

BILBAO, sometimes called Bilbao, in Geography, a port-town of Spain, in the province of Biscay, seated on the banks of the river Ybaizabal, about 6 miles from the sea. On the water-side is a large square, well shaded with pleasant walks, extending to the outskirts on the banks of the river, and containing a number of houses and gardens, which form an agreeable prospect, particularly in fulfilling up the river. The number of houses in this town is about 800, some of which are built on piles; they are solid and lofty; the streets are well paved and level; and as they may be walled as plentitude, Bilbao is one of the nestest towns in Europe. The tide that flows into the river forms a secure and much frequented harbour; and a considerable commerce is thus carried on in iron, wool, of which, it is said, 60,000 bags are annually exported to Great Britain, France, and Holland, fairs, and chefnates. Towards the close of the 16th century, the people of Biscay, having maintained their independence, together with their profession of Chiliasmity, even when the Moors gained possession of the other parts of Spain, and having about this time obtained some advantages over them, began to direct their attention to the manufacture of their own excellent iron, not only for their own use, but for the supply of other nations; and their port of Bilbao began to have shipping, and to engage in foreign trade, perhaps before any other nation to the west of the Mediterranean sea, at least in a very considerable degree. In the last year of the 13th century, this town was refounded, or new built, by Didacus Lopez, then prince, or lord of the province; and as it was the staple port for the iron and wool of Spain, its commerce rapidly increased; and it appears from Rymer's Fæderata, that in the reign of King Edward IV. A.D. 1474, the merchants of Guipuzcoa carried on, probably by the port of Bilbao, a considerable trade with England. It appears, also, that the Biscayners, availing themselves of the advantage of their shipping and port, were concerned in the whale-fishery at an earlier period than any other nation of Europe, Norway excepted. The town is supplied with flesh and poultry, and also with fish of various kinds, and particularly with a sort of eells in winter, which are small, of a pale colour, about three inches long, and without a back bone, caught in prodigious quantities at low tides, and in summer with the cuttlefish. The hamble are a Tucan building, in the centre of the town, with an open court, and a fountain in the middle, by means of which it is kept clean, and free from offensive offal and filth. The environs abound in gardens, which are fertile in legumes and fruits. This town has five churches, and several religious houses; and in its police it has one law of a peculiar kind, which renders ingratitude criminal, and subject to a penalty. Although the air is generally damp, the town is remarkably healthy, and the inhabitants are robust, cheerful, and long-lived; so that the hospital is frequently without a patient. The women are capable of enduring labour as well as the men, and are employed in unloading the ships, carrying burdens, and performing the bufines of porters. At the close of the day they return to their habitations, without any appearance of latitude, dancing and singing to the pipe and tabor. Their music is delayed at the expense of the town; and on holidays it is performed in the middle of a great concourse of persons under the trees in the great square. The women of Bilbao, though constantly exposed to the air, have good complexions, lively eyes, and fine black hair, which they curiously braid, and which they reckon peculiarly ornamental. Married women wrap a white handkerchief round their heads, so knotted as to fall down in three plaits behind, and over this they wear the Motera cap. Thoie who understand their language say it is very soft and harmonious, as well as energetic. N. lat. 43°. W. long. 2°. 45'. See Biscay.

BILBERRY, in Botany. See Vaccinium.

BILBILINAE AQUISET, in Ancient Geography, Alhana, mineral and medicinal waters of Spain, 23 miles from Bilbils, according to the Itinerary of Antoninus. The name Alhana, given by the Arabian to this place, has the same meaning with the aque calcile of the Latins. See Alhana.

BILBILIS, BAMBULA, a town of Biscay Tarragonensis, belonging to the Celtiberi, south of Tarraco; seated on a mountain surrounded by the waters ot Soloto and Xalon. Bilbils was a municipal town, and bore the title of Augusta, which is found on several medals. The poet Martial was of this city, called by Poleney Bilbils.

" Municipis Augusta nabilos quos Bilbilis acri Monte creav, rapidis quo solus cingit aquis."

Martial, l. 10, epig. 143.

On most of the medals of Bilbilis, we perceive, on one side a head of Auguritus, and, on the other, a cavalier, armed with a lance and a helmet.—Alfo, a river of Spain, the waters of which were famous for tempering iron; called also Salo.

BILBOWS, in Scrophulis, a punishment answering to the flocks at land.

They consist of long bars, or bolts of iron, with shackle sliding on them, and a lock at the end, used to confine the feet of prisoners, in a manner similar to the confinement of the hands in handcuffs. See Stocks.

BILCOCK, in Ornithology, one of the eynymous English names of Rallus aquaticus, or water-rail.

BILDERVERTSCHEN, in Geography, a town of Prufil, in the province of Lithuania, 4 miles W.N.W. of Stalluponen.

BILDESTON. See BILTON.

BILDGE, or BILGE OF A SHIP, denotes the bottom of her foor; or the breadth of that part which the reels on, when she is a-ground.

Hence, when a ship receives a fracture in this place, by striking on a rock, or otherwise, she is said to be bilged, or bulged.

BILdge-Water, is that which, by reason of the flatness of the ship's bottom, lies on her foor, and cannot go to the well of the pump. This water is always, if the ship does not leak, of a dirty colour, and disagreeable smell.

The Dutch, whole ships are often of this form, use a sort of pumps, called "bilge-pumps," or, as we call them "burr-pumps," to carry off the bilge-water.

BILE, in Phvsiology, is the fluid prepared from the blood by the liver of animals. The colour of healthy bile in the human subject is probably of a deep yellow brown. In oxen, it is frequently of a yellowish green. In the gall bladder, it is of a thick thick consistency, of an uncertain feel, or like that of mucus, of a bitter taste, and peculiar smell. Its specific gravity is about 1.027. It readily mixes with water, but will not incorporate with oil, yet it takes GIFS out of cloths. Albumen may be precipitated from it by alcohol and acids; and Cadet ascertained its proportion in 160 parts of ox bile to be about 0.52. (Cadet, Mem. Par. 1757.) If a solution of bile in muriatic acid be concentrated by heat, a cephus precipitate takes place, and the solution changes its colour from a
grains green to a brown. This precipitate has the properties of a resin. From 100 parts of bile, 1.87 of crystallized soda has been obtained, and some was probably lost in the process. The residue also obtained from bile a fat of a fawtht tinte. There are other substances found in bile in small quantities: phosphated hydrogen gas, which is emitted on the addition of muriatic acid; a little muriate of soda, phosphate of lime, and phosphate of soda and of iron. Of course water is the vehicle for all these substances, and forms the largest share of the ingredients in the composition of bile. For an account of the liberation of bile, see the article LIVER, functions of.

Bile, in Chemistry. This fluid may justly be considered as equally important to the chemist as to the physiologist; and accordingly it has been examined with extreme minuteness by a great number of eminent chemists, in various countries, with a general parity of refult which is highly satisfactory. Indeed the analysis of bile, as far as relates to the detection of its leading constituent parts, is neither very complicated nor remarkably difficult.

Chemists have not been able to detect any considerable difference between the bile immediately secreted from the liver, and that which is found in the gall-bladder, excepting that the latter appears on the whole to be somewhat less watery, more bitter and more viscid than the former. The age of the animal makes a greater difference, the bile or gall of oxen being more viscid than that of calves. On account of the ease with which ox-gall is procured in considerable quantity, this has generally been selected for experiment; but its analysis does not essentially differ from that of the bile of any other animal.

Bile is a homogeneous fluid, in some animals of a deep yellowish brown, in others of various shades of green, fo viscid as not to pour by drops; of a peculiar faint smell, but not ungrateful when fresh, and not from a diluted animal: intensely bitter to the taste, even when very largely diluted with water, and somewhat pungent. It is considerably heavier than water; its specific gravity being from about 1.02 to 1.025, varying according to the age and health of the animal, and probably to the time that it has remained within the gall-bladder. When agitated, bile lathers like soap water.

When bile is gently heated, an aqueous vapor arises, which, when condensed, appears by the most delicate regents to be nothing but water, strongly impregnated however with the odorous part of this fluid, and somewhat fetid. Bile looses about seven eightths of its bulk of mere water by this evaporation; and the residue gradually thickens into the confluence of a transparent extract, which, on carefully drying, becomes a hard brittle limy mass, like wax, of a dark colour, and intensely bitter.

If this extract of bile be slowly heated in a retort to decomposition, the products are, a watery fluid, fortified with phosphated hydrogen gas, a brown fetid liquid containing ammonia, a tenebrous fuming empyreumatic oil, with more carbonated ammonia, and a copious effusion of carbonic acid, and carburetted with sulphuretted hydrogen. The mass in the retort swells up prodigiously in the process, and leaves a puffy coals easy to incinerate, the ashes of which contain a nitrate of carbonated soda, with some muriated soda, phosphat of soda and lime, and a little iron. Fontana obtained from a pound of ox-gall 45 grains of carbonated soda, and 6 grains of common salt.

The residuum, therefore, of calcined bile contains alkalii in excess; and hence water, with which it has been lixiviated, readily turns fyrup of violets green. The fame telt of an alkali is given with fresh bile, diluted with water, that the change of colour may be more apparent.

The action of acids on bile throw much light on its composition. Muriatic acid, strong or dilute, added to bile, immediately produces a coagulation, and, at the same time, renders the whole liquor of a fine light green. The coagulum, however, is partly redissolved, if the acid is concentrated. Examined chemically, it is found to be albumen, but intensely bitter. In the clear green liquor, though retaining the muriatic acid, the bitter taste also brightly predominates. Evaporated slowly, it deposits in about an hour's time another precipitate, very green, intensely bitter, and soft and tenacious like turpentine. The clear liquor is now yellowish, and, on further evaporation, yields a number of cubic crystals of muriated soda, formed chiefly, if not entirely, by the soda originally contained in the bile and the acid added. As a proof that this is the case, if the experiment is made with nitrous or sulphuric acid, instead of the muriatic, the salt will be nitrated or sulphated soda. The above decomposition is more perfect, if bile and muriated acetic acid are at first boiled together for a few minutes; the result then is a total separation of a dark green glutinous bitter mass, and a liquid now colourless and feebly bitter, from which the muriated soda may be procured by evaporation.

This glutinous coagulum, when dry, burns like a resin. Alcohol heated upon it dissolves one part, and leaves another untouched, thus entirely separating it into two distinct principles: the insoluble, which is albumen; and the soluble, which retains the colour and taste of bile, is totally precipitated from the spirit by water, is highly inflammable, insoluble in water, and has been considered as a species of resin or concrete oil, and is termed by some the resin of bile. Pouchroy, however, supposes it to be more of the nature of adipocere.

Alcohol alone is another important regent for the analysis of bile. When these two fluids are mixed together, a coagulum is immediately formed of a whitish tenacious substance, feebly bitter when well washed, and exhibiting all the properties of albumen. The remaining liquor is green, and contains, mixed with the alcohol, the resinous, fatty, and colouring matter of the bile. Alcohol equally separates albumen from bile, impalpable by evaporation, and dissolves the remainder. The alcoholic solution of bile, not previously treated by an acid, differs considerably from that which has undergone this treatment. In the latter case, as before mentioned, the solution is decomposable by mere water, and by evaporation is converted into a very resinous product. In the former case, the solution mixes uniformly with water, yields by evaporation a transparent extract like gum-arabic of a feebish tingle, a little mixed with the natural bitternes of bile, and easily soluble in water. The reason of this difference is doubtless owing to the proportion of the soda from the rear of bile by the oxed in one instance, whereas in the other they remain united in the form of a natural soap. Hence it is that the effusion of an acid upon the latter alcoholic solution decomposes it, and separates an insipid fluid, which again dissolved in alcohol is more precipitable from this solv'd by simple water, and resembles a pure resinous solution.

Some chemists have thought that they could also detect a saccharine matter in bile, but the experiments to this purpose are not conclusive.

The oxygenized muriatic acid gas passed through bile diluted with a little water, soon dyes its yellow green colour, and precipitates the albumen in white flocculi; the vapours
B I L E.

refin continues in solution without colour or smell; but the bitter principle remains. A further quantity of this acid separates the resinous oil as the muriatic acid does, but white and concrete. Any acid poured upon bile already bleached by the oxymuriatic acid, separates numerous white concrete matter much resembling adipocere, but the precise nature of the change produced by the oxymuriatic acid has not been properly ascertained.

Bile therefore may be inferred from the present state of chemical analysis to contain, 1. A large proportion of water. 2. A substance closely resembling animal albumen. 3. A peculiar resinous inflammable matter, naturally and intimately with

4. Soda, into a kind of soap, or sapenaceous extract. 5. Some neutral salts. 6. A small quantity of oxide of iron. Besides these constituents, there is a colouring and odorant matter, but it is not yet ascertained whether these are properties of any of the above-mentioned ingredients, or whether they belong to a peculiar substance.

Some chemists have also supposed a kind of saccharine mucilage, resembling the sap of milk, but the existence of this in recent masticated bile is very doubtful.

Bile has been supposed to be a powerful antiseptic, and its effects in the animal economy have been attributed to this quality, but without much foundation. Bile, left to itself in a moderate temperature soon becomes putrid (though not so speedily as blood); it then exudes a very fetid odour, but after this point it decomposes but very slowly, and at last assumes a strong, not very unpleasant mucity smell. This partial resistance to putrefaction is probably owing to the resins ingredient, which last, when separated by acids and alcohol, in the way already mentioned, is absolutely incapable of putrefaction. M. Cadet affirms, that at no time during this process is any acid generated.

The sapenaceous quality of bile, which is very characteristic, and is owing to the intimate union of its resin with soda, renders it miscible with milk, with oil, myrrh, aloe, and other gum resins, by trituration, without curling, or ready decomposition. It is also owing to an intimate mixture with this natural soap that the albumen which bile contains is not coagulable by heat; even if an additional quantity of albumen (white of egg for example) is mixed with bile, heat will not coagulate it. Hence too, alcohol on any part ally separates the albumen, unless an acid is previously applied to engage the soda, and the alcoholic solution of the resin retains the soda so as to render the resin not separable by mere water.

Bile, or ox-gall, is employed in various ways as a cleanser of wool, cloth, &c. to get out greasy spots, to take off the greasiness of ivory in preparing it for receiving colours; and in China it is mixed with some of their varnishes. Gall a little putrid may be preferred a long time from further alteration by being boiled for a few minutes.

M. Fourcroy affirms, that he has obtained a substance, resembling bile in every property, by mixing blood with a third of water, coagulating it by heat, and slowly evaporating the serum. This experiment has, however, been repeated by others without success. See Cadet in the Mem. de l'Acad. des Sciences, for 1767 and 1768. Van Bochante, Professeur at Louvain, in the Jour. de PhyL tom. 13. Suppl. An. Chim. tom. 4, 5, and 6. Fourcroy Syst. de Conn. Chim. &c.

Bile, in Medicine, is a yellowish-green fluid, more or less viscid, and of a bitter taste, secreted in the liver, and conveyed from that viscus, by the so-called ductus communis choledochus, into the duodenum. It is a very compound fluid, being resolved by chemical analysis into a variety of ingredients: such as water, albumen, retina, fodia, muriate of fodia, phosphat of fodia, phosphat of lime and iron, besides a sweeter matter analogous to sugar of milk. In its general properties, it may be said to participate of the nature of a loast, although it will not intimately mix with oil. The Sylvic bile, or that which is contained in the gall bladder, possesses more vileness and bitternes, (i.e. is more concentrated) than that which flows directly from the biliary ducts into the duodenum, and which is termed hepatic bile.

When we see an organ of such magnitude as the liver, appropriated to the secretion of the bile, we are naturally led to infer that the fluid so secreted, must answer for some useful purposes in the animal economy; but respecting the number and kind of purposes which it answers, physiologists do not exactly agree. It may, perhaps, concur with the pancreatic juice, to the separation of the refuse part of the alimentary pulp (chyme) from the proper chyle; but, as Dr. G. For- dyce has remarked, in his treatise on the digestion of food, the bile does not unite with the chyle itself, and pass along with it, through the lacteals into the blood. Mixed with the feculent matter, and colouring it, the bile seems to prevent that matter from running into fermentation, by virtue of its alkaline nature; and perhaps, also, in consequence of the bitter principle which it contains, it may, in some degree, resist putrefaction; but its principal and most obvious use is, as a stimulus to the intestines, serving to keep up a due degree of peristaltic action, and thereby to produce a regular and natural evacuation of their contents. Hence a diminished secretion, or obstructed passage of the bile, is always accompanied with colic.

From this view of the nature and composition of the biliary secretion, and of its action upon the living body in a state of health, we proceed to the consideration of its morbid conditions, which may be reduced to four heads; viz.


1. A deficiency of bile. This is known by a pale and languid habit of body, indigestion, flatulence, acidity, colic, nausea, and pale or clay-coloured stools. It is occasioned by a sedentary mode of life, by intemperance, and by deprefling passions of the mind. It occurs in chlorosis, hypochondriasis, and chronic hepatitis. (See what is said of these diseases under their respective titles.) Whatever be its cause it may be owing, it is always attended with indigestion and colic; hence it should be specially attended to in the cure. A well-regulated diet should be prescribed, wherein spirits, drinks, high-salted meats, flatulent vegetables, and crude and acid fruits, should be forbidden. Much stews should be at the same time be laid on a plan of regular exercise; and the injurious effects of cold and damp upon the gastric and hepatic sytems, should be counteracted by suitable clothing. As a further aid to digestion, bitters and chalybeates (especially the chalybeate mineral waters), should be prescribed; and colivenes should be remedied by occasional doses of rhubarb, neutral salts, and aloe; and sometimes by the stronger cathartics. Acidity should be counteracted by alkalies, among which foda or natron preparatum answers best. Where the diminished secretion of bile has appeared to be connected with a diseased structure of the liver, and particularly where such a change of structure has arisen from inflammation, mercury (Dr. Saunders observes), has been found useful, even carried to the degree of producing a slight salivation; moderating the violence, however, of its operations by plentiful dilution, with
with gum arabic, and other vegetable demulcents. In these cases, the same author has found a tepid bath, of 90 degrees of Fahrenheit, to produce manifest good effects.

2. Obstruction of Bile. After it is secreted, the bile is sometimes prevented from passing into the duodenum. This may happen from various causes; viz. from an obliteraton of the cavities of the biliary ducts, either by a thickening of their coats, or by a tuberous flate of the liver, the consequences of inflammation; from pressure produced by enlargements of the neighbouring parts; and from a too viscid and constant flate of the bile itself; but, more than all, from gall-stones impacted in the common duct. Whenever in any of these ways, the bile, after being secreted, is hindered from passing into the duodenum, it is either taken into the a. cultating system by what is termed regimentation, or by absorption; producing great languor and opprobrium, together with a yellowness of the skin, and tunic conjunctiva of the eyes, &c. i.e. giving rise to jaundice. (See Gall-Stones and Jaundice.) The treatment must be varied, according to the variety of conditions on which the obstruction depends. In this place, it will be sufficient to remark, that saline purgatives, mercurials, faponaceous and alkaline medicines, with tepid dilution, and warm bathing, will be found suited to the majority of these cases.

3. Excess, or redundancy of Bile, is a morbid affliction, of very frequent occurrence. Among its exciting causes may be mentioned intemperance of living, the flummer and autumal heats of our own latitudes, and more especially the high temperatures of the tropical climates; in a word, whatever produces a hurried circulation, or irritates the vallcular and secreting system of the liver. A redundancy of bile makes itself known by "a general languor of the body, together with nausea, foul tongue, loss of appetite, and indigestion; or, by being directed to the intestines, excites a painful diarrhoea, ultimately rendering their tone, and disturb their regular peristaltic motion. It generally happens, that, during the excess and prevalence of bile in the first passages, some absorption of it takes place into the habit, so that the skin becomes yellow, and the urine is feebly impregnated with it. The pulse is quicker than natural, and there is a considerable degree of thirst, with an increase of heat; the usual symptoms of fever. The body becomes emaciated, and the general aspect of the patient is extremely unhealthy. It may be added, that most of the fevers of hot climates, whether intermittent, remittent, or continued, are accompanied by an overflow of bile. (See Pervers.) When the increased secretion of bile affects the flomach and bowels in such manner as to excite vomiting and purging to a violent degree, it gives rise to that form of disease which is termed oblera; of which a particular description will be found under that title; when it produces vomiting, joined with confusion and acute pains about the umbilical region, the disease is termed bilious colic (see Colic); and lastly, when the evacuation of bile is frequent and copious by food only, without frequent vomiting, it constitutes bilious diarrhoea. (See Diarrhoea.) It is the remark of that judicious writer, to whose work we have more than once referred in this account of bilious disorders, that it is more difficult to supply a deficiency of bile, than to carry off its excess. In fact, little more is required for the fulfilment of this, within, than to promote the discharge of the redundant bile by gentle saline evacuants; for the bile has generally of itself a purgative tendency), and to prevent fresh accumulations, by diluting freely with water heated to a proper temperature. For this purpose, the patient should drink every morning, according to the excellent directions of Dr. Saunders, from half a pint to a pint of water, of a temperature from 80° to 115° of Fahrenheit's thermometer, and use moderate exercise before breakfast. With the same view, the Bath and Buxton waters, (provided their use be not contra-indicated by visceral disease), and the Cheltenham water also may be recommended. At the same time, a proper diet should be prescribed, consisting of food that is easy of digestion, not over-stimulating, and free from flatulence; and spirited drinks and malt liquors should be forbidden. Pasty is particularly improper. Water, or wine and water, will be the best beverage. When the bile has been sufficiently evacuated, biters and chalybeats may be given with advantage. But where these complaints are the consequence of residing in the tropical regions, the only effectual remedy is to remove to a temperate climate. People, who have suffered in these respects from the heat of climate, and to whom it is necessary to return to this country for the recovery of their health, should endeavour (as Dr. Lind has suggested), to arrive in the beginning of summer, as they will find the winters of Great Britain, on their first arrival, too piercing and severe for their constitutions.

4. Vitiation of the Bile. In almost all cases wherein the secretion of bile exceeds the natural quantity, it is at the same time vitiated in its quality. Thus in bilious fevers, bilious diarrhoea, bilious colic, and cholera morbus, it is often vitiated both in colour and taste, appearing wholly of a pure green colour, and possessing a sharpness or acidity which sets the teeth on edge, and produces a burning and corroding inflammation in the flomach, esophagus and fauces, and at the same time violent twitchings in the intestinal canal. Such vitations of the bile are common to infants, as well as to adults. The remedial treatment consists in evacuating the offending bile by the means specified under the preceding division (3), and correcting its vitiated qualities by the employment of alkalies, and by copious dilution with aqueous and mucilaginous liquors. After due evacuations, the flomach and bowels may be protected from the irritating action of the remaining bile by opiate medicines. Lind, Clark, Winterbottom, and other writers on the diseases of hot climates, may be referred to for many excellent observations on bilious disorders; but the best and most comprehensive treatise on this subject is that of Dr. Saunders.

BLEDGIK, in Geography, a town of Atlantic Turkey, in the province of Natoone, 32 miles N.W. of Eski Shehr.

BILEDULGERID, a country of Africa, comprehending, according to some geographers, the southern part of Algiers, together with the whole tract of land that lies in this direction between the Atlantic ocean and Egypt, and in this extent, including eight large tracts or provinces, viz. Duca, Biledulgerid proper, Segelmeia, or Sijmalla, Talfeet, Tigoarina, Zeb or Zab, Dorka or Doria, and Teltel, before several inferior districts, mentioned under the name of Oudna, or Augusta, Fassan or Fersan, and Gadames or Cadamis, &c. It was known to the ancients under the name of Num. It is in a more confined and proper sense, according to the arrangement of Dr. Lief, and several modern geographers, Biledulgerid includes that tract of land which lies south of Algiers and Tunis, and is bounded on the east by a range of lofty mountains, which separates it from Tripoli and part of Cadamis, on the west by the countries of Zuidar, Mezabz, and on the south by the province of Vorgela, or Wergela. Its dimensions are not accurately ascertained; but it is from what of a square form, supposed to extend about 60 or 80 leagues every way, or from about 31° 15' to 34° 15' N. lat., and from 5° 36' to 10° 10' E. long. Some have derived the appellation Biledulgerid from Biled el ferid, or the "land of dates," under which denomination it is distinguished in Rennell's map of North Africa; but others, with
Dr. Shaw, deduces it from Blaß and Jerilu, or the "dry country." The whole province of Bledagurid, bordering to the south on Sahara, or the Great Desert, is mountainous, sandy, and barren, producing little or no sustenance but dates, which grow in such abundance, that various parts of it are covered with palm-trees bearing this fruit. The climate is hot and unhealthy; the people are meagre, sallow, and shrivelled in their complexions, and their eyes are inflamed by the reflection of the sun-beams, from the white hard soil, and by clouds of dust and sand driven by the high winds at some seasons in such abundance, as to bury men and cattle under their collected mafs. They are also subject to a febrifule complaint, of which they can afflig without probable caufe, but so inative, that their teeth drop out, and their bodies become loathfome. In other refpects they are healthy and vigorous, and live without fickness or difafe to a great age. The plague of Barbary is fearely ever heard of in this province, notwithstanding the contiguity of the two countries, and the frequent intercourse of their inhabitants. Bledagurid, properly fo called, has few rivers and towns. The natives of Bledagurid are repreffed as a low, treacherous, thievish, and Savage people, that delight in murder, blood, and rapine. They are, in general, a mixture of old Africans and wild Arabs; the former of whom lived with fome degree of regularity and civil order, in a kind of villages composed of a number of little huts, while the latter inhabited movable tents, and ranged from place to place in quell of food and plunder. These Arabs value themselves on their superiority with regard to birth and talents above the primitive inhabitants; and while they are wholly independent and free, they occaflonally hire themselves to serve in the wars of the neighbouring princes, and hence arises the chief part of their public revenue; the refl purflne no other occupations besides plundering and hunting, and particularly hunting oiffices, the fefh of which they defire for food, and the fethers they barter for corn, paffe, and other necessaries. The other parts of these birds they ufe in their religious rites, as ornaments of cloaths, or as pouches and knapsacks. Besides dates and oiffices, thev likefife ufliffi the fefh of goats and camel; and for their drink, they ufe either the broth in which the fefh is boiled, or the milk of their camels, for they feldom take water, which is not only scarce, but brackifh and unwholesome. For the character and manners of thofe who inhabit that part of Bledagurid, taken in its former extent, and bordering on the Atlantic ocean; see MONGELMINE and MONGEATS.

BILCHEFIELD. See BILFELD.

BILCHE. See BILDER.

BILGUERV, JOHN ULRICK, in Biography, born at Coire, in the country of the Grious, in Switzerland; after passing through the usual course of education, practiced surgery at Berlin, where he foon acquired such reputation, as to engage the attention of king Frederic the Great, who made him surgeon to one of his regiments, and, in progression, surgeon-general to the Prussian army. In the course of an extensive practice in this field, he had an opportunity of observing how very small a proportion of the men recovered from fractures, where the loft parts were greatly bruised, and the bones shattered, when the limb had been amputated, which in such cafes was the general practice. This induced him to try more lenient methods, which he practiced with fuch success, as to enable him to reduce the cafe in which amputation should be declared to be necessary to a very small number. In 1761, he was admitted to the degree of doctor in medicine, by the university of Hall, in Saxony, where he read for his thesis "De membrorum amputatione
BILINEATA, in Entomology, 3 species of Leptura, of a blackish-brown, with two lines on the thorax, and scattered dots on the wing-cases yellowish. Scopoli, Gmelin. Inhabits Cornwall.

BILINEATA, a species of Callacris, with a yellow thorax, with a spot, and four brown dots: wing-cases yellow, with a fuscous line. Thunberg, &c. This is native of the Cape of Good Hope.

BILINEATA, a species of Chrysomela, that inhabits Scandinavia. It is green, glistened with gold; anterior part of the thorax excavated; and a double blue line on the wing-cases. Gmelin.

BILINEATA, a species of Phalaena (Gometra), with yellowish testaceous wings, waved with a broad stripe across, having a brown and a white margin. Linn. F. Svec. &c. A very common insect in hedges during the summer months; and is called in England sometimes the elm moth.

BILINEATA, a species of Brygynæa, of a blackish colour, with brown wings, and two white lines on each margin. Inhabits the north of Europe.

BILINEATUM, in Conchology, a species of Buccinum, described by Lüter. The shell is transversely striated; spine obtuse; the whorls with a pitted band and two lines. Its native country is unknown.

BILINEATUM, in Entomology, a species of Phalangiæ, of a pale colour, with two dorsal lines and black dots. Fabricius. Inhabits Norway.

BILINEATUM, a species of Cercoæli. This insect is brown, with two white lines on the wing-cases. Inhabits Germany.

BILINEATUM, a species of Cerambix (Prionus), with a crested thorax, marked with two white-lines; wing-cases ferruginous, speckled with white, and bordered with yellow. Inhabits America. Fabricius, &c.

BILINEATUM, a species of Cryptocœphalus, of a minute size, that is found in Europe. This insect is black, with two yellowish lines on the wing-cases, and ferruginous legs. Gmelin. A native of Europe, and described by Linnaeus as chrysomela bilineata.

BILINEATUS, a species of Ichneumon. It is black, with two yellow lines in front; abdomen depressed; legs red; tips of the posterior ones brown. Linn. Mol. Lefk.

BILINEATUS, in Ichthyology, a species of Plectonectes, found in China. It is thin, long, above yellow, with a brown margin; beneath reddish-white; entirely covered with very small scales. This is specifically distinguished by having the lateral line double. Bloch.

BILINEATUS, in Zoology, a species of Cölure, of a rufous colour, with two yellowish stripes: la double-queue de Cepede, and bilineata factae of Dr. Shaw. This kind, according to the former writer, measures two feet one inch in length, of which the tail is six inches and a half; colour rufous, each scale bordered with yellow; and from the back of the head are two bright golden-yellow stripes extending to the end of the tail; scales on the head large, those on the body smooth; native country unknown; abnormally fœta 204, halfcubical scales 99.

BILINGUUS, in Law. See Meditætas Lingue.

BILINGUUS, properly denotes a person who has two tongues in his mouth; an instance of which is given by Dobule. It is also used for a person who speaks two languages.

BILINGUUS Complexion. See Complexion, and Temperament.

BILINGUUS Colic. See Colic.

BILINGUUS Diet.--See Diarrhoæ Vol. IV.

BILIOUS Fever. See Fever.

BILLIANS, in Geography, a denomination given to a class of inhabitants of the southern parts of Russia. In their origin they are Scythes, who settled in their present habitations, and now exist under the name of Tcherewachs. See BULGARIANS.

BLITZ, a town of Sliecia, in the principality of Tefene, separated from Biala by the river of the same name, and at a small distance from it. N. lat. 49° 51'. E. long. 19° 16'.

BLIZIN, a town of Poland, in the palatinate of Nogrodock, about 18 miles N.E. of Nogrodock. N. lat. 53° 55'. E. long. 25° 45'.

BILL, in Agriculture, denotes an edge-tool, of the ax kind, with a hooked point, fitted to a handle, and used to lap boughs of trees, &c. When short, it is called a "hand-bill," when long, a "hedge-bill."

BILL, in Common Language, denotes a written or printed paper pulled up in some public place, for the purpose of advertising the sale of any merchandise, ship, &c. or the failing of any verdict, &c.

Bill is also used among tradesmen and workmen for an account, of goods sold and delivered, or of work done, with the charge annexed.

Bill, in Commerce, denotes a security for money under the hand, and sometimes seal of the debtor, without any condition or forfeiture, in case of non-performance.—In which it is distinguished from a bond or obligation. See Bond.

It has been usually defined a writing, wherein one man is bound to another to pay a sum of money, on a day that is future, or presently on demand, according to the agreement of the parties at the time when it is drawn, and the dealings between them.

Bill, in Law, denotes a declaration in writing, expressing a wrong or grievance, which the complainant hath suffered by the party complained of; or else some offence committed by him against some law or statute of the realm. This bill is commonly addressed to the lord chancellor, especially for uncontrollable wrongs done to the complainant; and sometimes to others having jurisdiction, according to the law direct. It contains the facts complained of, the damages sustained, and the petition of process against the defendant for redress. This is used as well in criminal as in civil matters. In criminal cases, when the grand jury against a pre-}
is wholly without remedy at the common law," relief is therefore prayed at the chancellor's hands, and also proceeds of fines assessed against the defendant, to compel him to answer upon oath to all the matter charged in the bill. See Suit in Equity.

Bill of Exception to Evidence. See Exception.

Bill of Exchange, in Commerce and Law, a short note, or writing, ordering the payment of a sum of money in one place, to some person assigned by the drawer, or remitter, in consideration of the like value paid to him in another place. (See Remittance.) Or, it is an open letter of request from one man to another, defining him to pay a sum of money named in it to a third person on his account, or to any other to whom that third person shall order it to be paid; or it may be made payable to bearer. This kind of negotiable security for money, invented among merchants in different countries, serves to facilitate the remittance of money from one to the other, and of course the conduct of commercial transactions; so that, since its first introduction, it has extended itself to almost all pecuniary negotiations.

Bills of exchange were unknown in the ancient Roman commerce, as well as jurisprudence. According to the common opinion, they are said to have been brought into general use by the Jews and Lombards, when banished for their usury and other vices; who found means to withdraw their effects, which they had lodged in the hands of friends, both in France and England, by secret letters and bills conceived in short precise terms, like the modern bills of exchange, which they negociated by the assistance of merchants and travellers. The Jews were banished out of France by Philip Augustus, in 1143, and out of England, in 1290; but the use of paper credit was introduced in the Mogul empire in China, in 1236. It further appears, that bills of exchange were negociated at Hamburgh, in 1188; and it has been said, that the faction of the Gibelins, being expelled Italy by the Guelphe, towards the close of the 15th century, retired to Amsterdam, and ufed the same means for the recovery of their effects in Italy as the Jews had done; and hence, as fine have thought, the Dutch merchants took the hint of negociating bills of exchange, and soon spread the practice throughout Europe. The fame Gibelins are said to be the inventors of the re-exchange, of re-exchange, on account of damages, charges, and interest, when bills of exchange, which they called "polizzi di cambio," are not paid, but returned on protest. In 1307, bills of exchange seem to have been in use in England, though their nature was not well understood at a much later period; and the first reference to them in an act of parliament, occurs in 1381, when they were forbidden to be used without the king's licence. In 1394, an ordinance was issued by the city of Barcelona, that bills of exchange should be accepted within twenty-four hours after they were presented, and that the acceptance should be written on the back of the bill. Moreover, in 1404, the magistrates of Bruges requested those of Barcelona to inform them what was the common practice, in regard to bills of exchange, when the person who presented a bill raised money on it in an unusual manner, in the case of its not being paid, and by these means increased the expenses to much, that the drawer would not content to fulfill the bills. The form of the bill, such as is now used, is seen in the memorial, which also speaks of usance; and it also appears, that first and second bills were at that time drawn, and that when bills were not accepted, it was customary to protect them. Anderson's Hist. Com. vol. i. Beckman's Hist. of Invent vol. iii p. 462.

In common speech, a bill of exchange is frequently called a "draught;" but the former is the more legal, as well as mercantile expression. The person who makes or draws the bill is called the "drawer," and he to whom it is addressed is denominated the "drawee," and when he undertakes to pay the amount, he is called the "acceptor." The person to whom it is ordered to be paid is called the "payee;" and if he appoint another to receive the money, this other is called the "indecor," as the payee is, with respect to him, the "indorser;" and any one who happens for the time to be in possession of the bill is called the "holder" of it. The time at which the payment is limited to be made is various, according to the circumstances of the parties, and the distance of their respective places of residence. Sometimes the amount is made payable at sight; sometimes at so many days after sight; at other times at a certain interval from the date. See Usance.

Where the time of payment is limited by months, it must be computed by calendar, not lunar months; and where one month is longer than the succeeding, it is a rule not to go in the computation into a third. Thus on a bill dated the 28th, 29th, 30th, or 31st of January, and payable one month after date, the time expires on the 28th of February, in common years, and in the three latter years, in leap year, on the 29th; to which are to be added the "days of grace." Where a bill is payable at so many days after sight, or from the date, the day of presentment, or of the date, is excluded. Thus, where a bill payable 10 days after sight is presented on the first day of a month, the 10 days expire on the 11th, when it is dated the first, and payable 20 days after date, these expire on the 21st. (Ld. Raym 281. Str. 829.) It is a custom among merchants, that a person to whom a bill is addressed, shall be allowed a few days for payment, beyond the time mentioned in the bill, called "days of grace." In Great Britain and Ireland, three days are allowed; in other places more. If the bill of these three days happens to be Sunday, the bill is to be paid on Saturday; but these days of grace are not allowed on bills payable at sight. If bills become due on Sunday, or on such holidays, when the law forbids business to be done, payment must be demanded or protest made for non-payment on the preceding day.

Bills of exchange are either "foreign" or "inland;" the first being those which pass from one country to another, and the latter such as pass between parties residing in the same country: and by the consent of merchants, certain customs are established with regard to foreign bills, which have been adopted as part of the law in every commercial state. Inland bills of exchange do not seem to have been very frequent in England before the reign of Charles II. (6 Mod. 29.) and foreign bills were much more regarded by the law than inland ones, as being thought of more public concern in the advancement of commerce. But at length the legislature, by two statutes, 17 W. 3. c. 17, and 3 & 4 Ann. c. 9, has fet both forts of bills nearly on the same footing, so that what was the law and custom of merchants, with regard to the one, is now, in most respects, the established law of the country, with regard to the other.

Promissory notes, or notes of hand, are a plain and direct engagement in writing to pay a sum specified at the time limited in it, to a person therein named, or to his order, or to the bearer at large. These notes were at first considered merely as evidence of a debt; and it was held that a promissory note was not assignable or indorsable, within the custom of merchants; and that if such a note had been indorsed or assigned over, the person to whom it was so indorsed or assigned, could not maintain an action within the custom against the drawer of the note; nor could even the person, to whom it was in the first instance made payable, bring such an action.
B I L L.

action. (1 Salk. 120. 2 Ld. Raym. 557, 9.) But at length the legislature recognized and put them upon the same footing with bills of exchange by statute 3 & 4 Ann. c. 9. made permanent by stat. 7 & 8. c. 25. § 3: which enacts that promissory notes, payable to order or bearer, may be affixed and indorsed, and a action maintained on them, as on a bill of exchange. By stat. 15 Geo. III. c. 51. and 17 Geo. III. c. 50. made perpetual by stat. 27 Geo. III. c. 16. all negotiable notes and bills for less than 20s. are declared to be null and void; and notes or bills between that sum and 51. must be made payable within 21 days after date, must purport the name and description of the payee, must bear date at the time and place in which they are made, must be attested by a subscribing witness, and the indorsement of them must be attended with the same formalities in all respects, and made before the notes or bills become due. The omission of any of these regulations and formalities vacates the security, and is fatal to any action. Bills of exchange and promissory notes may now be drawn on blank paper; and the stamp is proportioned under stat. 21 Geo. III. c. 27. 37 Geo. III. and 41 Geo. IV. c. 10. to the amount of the bill from sixpence to five shillings for such as are payable on demand; and for those payable after date from one shilling to four shillings. If foreign bills are drawn here, the whole lot must be stamped; but bills drawn abroad are not liable to any stamp duty.

As bills of exchange were first introduced for the convenience of commerce, it was formerly thought that they could neither be drawn nor negotiated by any person who was not actually a merchant; but it has been since decided, that any person capable of binding himself by a contract, may draw or accept, or negotiate a bill of exchange, and by stat. 3 & 4 Ann. c. 9. be a party to a promissory note. However, an infant cannot be sued on a bill of exchange, nor a feme-covert, except in such cases as he is allowed to act in as a feme-co. If a bill is drawn on two joint traders, the acceptance of one binds the other, if it concern the joint trade; but it is otherwise, if the bill concern the acceptor only, in a distinct interest and respect. On the subject of procuration with regard to bills; see Procuration.

A promissory note, when indorsed, begins to resemble a bill of exchange, for the indorser of the note corresponds to the drawer of the bill; the maker to the drawee or acceptor, and the indorsee to the payee; and this resemblance being fixed, the law is precisely the same in bills of exchange and promissory notes. It is now a decided point of law, that bills and notes made payable to bearer are equally transferable with those payable to order; and the transfer in both cases equally confers the right of action on the bona fide holder. But the mode of transfer is different; as bills and notes payable to bearer are transferred by mere delivery, the others by indorsement.

There are other bills and notes which differ from those already described, and which are securities for money, because they are considered as money itself. There are "Bank-notes," "Bankers' cash-notes," and "drafts on Bankers," payable on demand. Bank-notes are regarded in ordinary transactions by common consent as cash, and they have the credit and currency of money to every effectual purpose, and from to be as lawful a tender. (Stat. 5 W. & M. c. 25. § 28. 3 saint. Rep. 534.) Banker's cash-notes, and drafts of brokers, are considered among merchants as money, and are received as payment as ready cash; and if the party receiving them do so, within a reasonable time, demand the money; he must bear the loss in case of the banker's failure. The precise time is not absolutely determined; but it is held most advisable to carry such drafts on bankers, as are payable on demand, for payment on the day in which they are received, in the situation of the parties submit to it.

Bills of exchange and promissory notes, which, according to the general principles of law, are to be considered only evidences of a simple contract, are however in one respect regarded as specialties, and on the same footing with bonds; for they are promissory, unless the contrary be shown by the defendant, to have been made on a good consideration; nor is it incumbent on the plaintiff either to show a consideration in his declaration, or to prove it at the trial.

Bills of exchange, and also notes, are assignable or negotiable without any act; and every person to whom they are transferred may maintain an action in his own name against any one, who has before him in the course of their negotiations rendered himself responsible for the payment of them. But the instrument, or writing, which constitutes a good bill or note, must have certain essential qualities. One of these is, that the bill or note should be for the payment of money only, and not for the payment of money and doing of some other act. Another requisite quality is, that the instrument must carry with it a personal and certain credit, given to the drawer or maker, not confined to credit on any particular fund. But in the application of this principle, there is a material distinction between bills and notes. With regard to the former, where the fund is stipulated to be in the hands of the drawee, the objection holds in its full force, not only because the produce-ability of the fund is contingent and precarious, but because the credit is not given to the personal of the drawer: but where the fund, on account of which the money is payable, either is in the hands of the drawer, or he is accountable for it, the objection will not hold, because the credit is personal to him, and the fund is only the consideration of his giving the bill. With respect to a note, if the drawer promise to pay out of a particular fund, then within his power, the note will be good under the statute; the payment does not depend on the circumstance of the fund's proving unproductive, or not, but there is an obligation upon his personal credit; the bare making of the note being an acknowledgment that he has money in his hands. Another essential quality of a good bill or note is, that it must be absolutely payable at all events, and not depend on any particular circumstances which may or may not happen in the common course of things. No precise form of words is necessary to make a bill of exchange or a note under the statute; any order, which cannot be complied with, or promises, which cannot be performed, without the payment of money, will make a good bill or note. As the words "value received," have been usually inserted in bills or notes, some doubt has occurred, whether they are essential. It is now understood, as a decided point, that these words are not necessary; for instruments of this kind are presumed to have been made on a valuable consideration; and therefore words, which import no more, cannot be essential. It has been queried, whether it be essential to the constitution of a bill of exchange, that it should contain words which render it negotiable, as "to order," or "to bearer:" and the point has not yet received a judicial decision. With regard to notes that have not these words, the person to whom they are made payable, may maintain an action on them, within the statute, against the maker. With regard to the acceptance of bills of exchange, see Acceptance. Forgery the acceptance of any such bill, or the number or principal sum of any accountable receipt, is made felony by stat. 2 Geo. c. 22.

The mode of transferring bills and notes is regulated according to the express terms which render them negotiable. Such as are payable to bearer, are transferred by de-
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If payable to A. B. or bearer, they are payable to bearer, as if A. B. were not mentioned. But to the transfer of these payable to order, it is necessary, in addition to delivery, there should be something, by which the person may appear to express his order. This additional circumstance is called an "indorsement." See Indorsement.

By the very act of drawing a bill, the drawer comes under an implied engagement to the payee, and to every subsequent holder, fairly entitled to the possession, that the person on whom he draws is capable of binding himself by his acceptance; that he is to be found at the place where he is described to be, if that description is mentioned in the bill; that if the bill be duly presented to him, he will accept in writing on the bill itself, according to its tenor; and that he will pay it when it becomes due, if presented in proper time for that purpose. In default of any of these particulars, the drawer is liable to an action at the suit of any of the parties before-mentioned, on due diligence being exercised on their parts, not only for the payment of the original sum mentioned in the bill, but also in some cases for damages, interest, and costs; and he is equally subject to, whether the bill was drawn on his own account, or on that of a third person; for the holder of the bill is not to be affected by the circumstances that may exist between the drawer and another; the personal credit of the drawer being pledged for the due honour of the bill.

If a man write his name on a blank piece of paper, and deliver it to another, with authority to draw on it a bill of exchange to any amount, at any distance of time, he renders himself liable to be called on as the drawer of any bill so formed by the person to whom he has given the authority. If acceptance be refused, and the bill returned, this is notice to the drawer of the refusal of the drawer; and then the period, when the debt of the former is to be considered as contracted, is the moment when he draws the bill; and an action may be immediately commenced against him, though the regular time of payment, according to the tenor of the bill, be not arrived; for the drawer, not having given credit, which was the ground of the contract, what the drawer had undertaken has not been performed. When a bill of exchange is indorsed by the person to whom it was made payable, as between the indorser and indorsee, it is a new bill of exchange; as it is also between every subsequent indorser and indorsee; the indorser, therefore, with respect to all the parties subsequent to him, stands in the place of the drawer, being a collateral security for the acceptance and payment of the bill by the drawer; his indorsement imposes on him the same engagement that the drawing of the bill does on the drawer; and the period when that engagement attaches, is the time of the indorsement. Nor will any thing discharge the indorser from his engagement, but the absolute payment of the money; not even a judgment recovered against the drawer or any previous indorser, neither is his engagement discharged by an insulitary execution against the drawer, or any prior or subsequent indorser. The engagement of the drawer and indorsers depends on certain conditions to be performed by the holder of the bill, and without the performance of which he has no remedy against them.

When the payment of the bill is limited to a certain time after sight, the holder must present it for acceptance, otherwise the time of payment will never come. Although it has never been directly determined, whether the holder of a bill, payable at a certain time after date, be bound to present it for acceptance immediately on receiving it, or whether he may wait till it become due, and then present it for payment; yet in practice it often happens that a bill is negotiated and transferred through many hands, without acceptance, and not presented to the drawer till the time of payment; and no objection is ever made on that account. If, however, on the holder presenting the bill for acceptance, this be refused, he is bound to give regular notice to all the preceding parties to whom he intends to refer for non-payment; and if, on account of the holder's delay, any losses be incurred by the failure of any of these parties, he must bear these losses. It is also the duty of the holder of a bill, whether accepted or not, to present it for payment within a limited time; otherwise the law will imply that payment has been made, and it would be prejudicial to commerce, if a bill might be produced to charge the drawer at any distance of time, when all accounts might be adjusted between him and the drawer. A protest is either for payment or acceptance must be made at a seasonable hours, which are the common hours of business in the place where the party, to whom the bill is presented, resides. If acceptance or payment be refused, or the drawer of the bill, or the maker of the note, has become insolvent, or has absconded, notice from the holder himself must be given to the preceding parties, and in this notice it must be added, that the holder does not intend to give him credit. What may be considered as a reasonable time, within which notice should be given, either of non-acceptance or non-payment, has been subject to much doubt and uncertainty. It was once held, that a fortnight was a reasonable time; but that period is now much contracted. With respect to acceptance, it is usual to leave a bill for that purpose with the drawer till the next day; but if he, when called upon the next day, delay or refuse to accept according to the tenor of the bill, it is now an established rule, where the parties, to whom notice is to be given, reside at a different place from the holder and drawer, that notice should be sent by the next post, and the same rule obtains in case of non-payment. Also in case of the drawer of the bill, or maker of the note, having absconded, or not being found, notice of these circumstances, in case either of non-acceptance or non-payment, must be sent by the first post. Considerable difficulty has occurred in establishing a general rule in this respect, where the party entitled to notice resides in or near the place in which the holder lives. The court, however, has on several occasions laid it down as a principle, that what shall be considered as a reasonable time in case of notice, and also of demand of payment, is a question of law; and this seems to have been fully established, and it is understood generally, that a demand must be made, and notice given, as soon as under all the circumstances it is possible to do so. And in the manner in which notice is given, either of non-acceptance or non-payment, there is a remarkable difference between inland and foreign bills. In the former no particular form of words is necessary to entitle the holder to recover against the drawer or indorsers, the amount of the bill, on failure of the drawer or acceptor; it is sufficient if it appear that the holder means to give no credit to the latter, but to hold the former to their responsibility. But in foreign bills, other formalities are required. If the person to whom the bill is addresed, on presentment, will not accept it, the holder is to carry it to a person vested with a public character, who is to go to the drawer and demand acceptance; and if he then refuse, the officer is there to make a minute on the bill itself, consisting of his initials, the month, the day, and the year, with his charges for minuting. He must afterwards draw up a solemn declaration, that the bill has been presented for acceptance, which was refused, and that the holder intends to recover all the damages which he, or the deliverer of the money to the drawer, or any other, may sustain on account of the non-
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acceptance. This minute, in common language, is termed the "note" of the bill; the solemn declaration, the "pro- test; and the person whose face it is to do the acts called a "public notary;" and to his protestation all foreign courts give credit. If no such notary be resident in the place where the bill is negotiated, protest may be made by any substantial inhabitant in the presence of two credible witnesses. For the circumstances attending this protest, and the difference in this respect between inland and foreign bills, see Paoretz.

When a bill is once accepted absolutely, it cannot in any cafe be revoked, and the acceptor is at all events bound, though he hear of the drawer's having failed the next moment, even if the failure was before the acceptance. The acceptor may, however, be discharged by an express declaration of the holder, or by something equivalent to such declaration. But no circumstances of indulgence shown to the acceptor by the holder, nor an attempt on his part to recover of the drawer, will amount to an express declaration of discharge. Neither will any length of time short of the statute of limitations, nor the receipt of part of the money from the drawer or indorser, nor a promise by indemnification on the bill by the drawer to pay the residue, discharge the holder's remedy against the acceptor. Although the receipt of part from the drawer or indorser be no discharge to the acceptor, yet the receipt of part from the acceptor of a bill, or the maker of a note, is a discharge to the drawer and indorsers in the one case, and to the indorsers in the other, unless due notice be given of the non-payment of the residue; but where due notice is given, that the bill is not duly paid, the receipt of part of the money from an acceptor, or maker, will not discharge the drawer or indorsers; because it is for their advantage, that as much should be received from others as may be. So the receipt of part from an indorser is no discharge of the drawer or preceding indorser. If the drawer of a note, or the acceptor of a bill, be fixed by the indorser, and the bill pay the debt and costs, this absolutely discharges the indorser as much as if the principal had paid the note or bill; and the bill cannot afterwards recover against the indorser in the name of the indorser. On the principles of several cases it has been finally settled, that to entitle the indorser to recover against the indorser of an inland bill of exchange, it is not necessary to demand the money of the first drawer.

By the Stat. 3 & 4 Ann. c. 9, § 7, it is enacted, that if any person accept a bill of exchange for and in satisfaction of any former debt or claim of money, formerly due to him, this shall be accounted and esteemed a full and complete payment of such debt; if such person, accepting such bill for his debt, do not take his due course to obtain payment of it, by endeavouring to get the face accepted and paid, and make his protest according to the directions of the act, either for non-acceptance or non-payment.

Where a privity exists between the parties in a bill of exchange, an action at debt, or of "indubitus Allanum," may be maintained; but where it does not exist, neither of those actions will lie. A privity exists between the payee and the drawer of a bill of exchange; the payee and drawer of a promissory note; the indorser and his immediate indorser of either the one or the other; and perhaps between the drawer and acceptor of a bill; provided that, in all those cases, a consideration passed respectively between the parties. But no privity is supposed to exist between the indorser and acceptor of a bill, or the maker of a note, or between an indorser and a remote indorser of either.

The action which is now brought on a bill of exchange, is a special action on the case, founded on the custom of merchants. This custom was not at first recognized by the court, unless it was specially set forth; but when this custom was recognized by the judges as part of the law of the land, and they declared they would take notice of it "ex officio," it became unnecessary to recite the custom at full length; a simple allegation that "the drawer, mentioning him by his name, according to the custom of merchants, drew his bill of exchange, &c." was sufficient. If the plaintiff, adhering to former precedents, thought proper to recite the custom in general terms, and did not bring his case within the custom so far forth; yet if by the law of merchants, as recognized by the court, the case is flated, entitled him to his action, he might recover; and the latter part of the custom was reckoned surplusage, and rejected. Whether the drawer of a bill, or the indorser of a bill or of a note, receiving the bill or note in the regular course of negotiation before it has become due, can maintain an action on it against the acceptor or maker, in the character of indorser, seems undecided; but there is a case which clearly shows that a drawer or indorser cannot maintain an action in the character of indorser, "where the indorsement is after the refusal of payment;" because when a bill is returned unpaid, either on the drawer or indorser, its negotiability is at an end. The action, therefore, in which the drawer or indorser, after payment of the money in default of the acceptor, may recover, the first against the acceptor, and the latter against any of the preceding parties, must be brought in their original capacity as drawer or indorser, and not as indorser. If the drawer, without having effects of the drawer, accept and duly pay the bill without having it protected, he may recover back the money in action for money paid, laid out, and expended to the use of the drawer. Instead of bringing an action on the custom, or on the statute, the plaintiff may in many cases use a bill or note only as evidence in another action; and if the instrument want some of the requisites for making it a good bill or note, the only use he can make of it is to give it in evidence.

The holder of the bill or note may sue all the parties who are liable to pay the money; either at the same time, or in succession; and he may recover judgment against all, if satisfaction be not made by the payment of the money before judgment obtained against all; and proceedings will not be laid in any one action, but on payment of the debt and costs in that action, and the costs in all the others in which he has not obtained judgment. But though he may have judgment against all, yet he can recover but one satisfaction; and though he be paid by one, he may sue out execution for the costs in the several actions against the others. To this action the defendant may plead the statute of limitations; and by the express proviso of the statute of Queen Anne, all actions on promissory notes must be brought within the same time as is limited by the statute of James, with respect to actions on the case. And to this plea it is no good replication, that it was on account between merchants, where it appears to be for value received.

As the action on a bill of exchange is founded on the custom of merchants, so that on a promissory note is founded on the statute 3 & 4 Ann. c. 9. In both cases, however, it is necessary, that all those circumstances should be expressly stated, or clearly and inevitably implied, which, according to the characters of the parties to the action, must necessarily concur, in order to entitle the plaintiff to recover. In filing the bill or note, regard must be had to the legal operation of each respectively. It has been decided, that the legal operation of a bill or of a note, payable to a fictitious payee, is, that it is payable to the bearer; and therefore it is proper in the statement of such a bill, to allege that the drawer thereby requested the drawee to pay the money to the bearer;
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bearer; and in the statement of such a note, that the maker thereby promised to pay such a sum to the bearer.

As to the proof that is necessary in actions on bills or notes, we may observe, that the plaintiff must, in all cases, prove so much of what is necessary to entitle him to his action, and of what must be stated in his declaration, as is not, from the nature of the thing, and the situation of the parties, necessarily admitted. In an action against the acceptor, it is a general rule that the drawer's hand-writing is admitted; that of the acceptor must of course be proved; and that of every person, through whom the plaintiff, from the nature of the transaction, must necessarily derive his title. On a bill payable to bearer, in an action against the acceptor, he has only to prove the hand-writing of the acceptor himself; but in case of a bill payable to order, the plaintiff must prove the hand-writing of the very payee who must be the first indorser. In case of a transfer by delivery, the plaintiff may be called upon to prove that he gave a good consideration for the bill or note, without the knowledge of its having been stolen, or of any of the names of the blank indorsers having been forged. In an action by the indorsee against the drawer, the same rules obtain with respect to proof of the hand-writing of the indorsers, as in an action against the acceptors. That of the drawer himself must of course be proved; and it must also be proved that the plaintiff has used due diligence. From the rule, that in an action against the drawer or acceptor of a bill payable to order, there must be proof of the signature of the payee, first indorser, and all those to whom an indorsement has been specially made, arose the question, which long and greatly agitated the commercial world, on the subject of indorsements in the name of fictitious payees. A bill, payable to the order of a fictitious person, and indorsed in a fictitious name, is not a novelty among merchants and traders. But in the years 1786, 7, and 8, two or three houses, having connection in trade, and entering into engagements far beyond their capital, under an apprehension that the credit of their own names would not be sufficient to procure currency to their bills, adopted, to a very extensive degree, a practice which had before been found convenient on a smaller scale. For a considerable time, whilst money could be procured for the payment of these bills by the acceptors or drawers, and they had sufficient credit with the holder to have them renewed, the subject of these fictitious indorsements was not questioned. But when credit failed, and a commotion of bankruptcy became necessary, the other creditors felt it their interest to replead the claims of the holders of these bills, and inferred that they should not be allowed to prove their debts, because they could not conform to the general rule of law, requiring proof of the hand-writing of the first indorser. The chancellor, when the question came before him by petition, directed trials at law. From the decisions in consequence of these trials, the principal of which was affirmed in the House of Lords, and which have led to the custom that such bills are to be considered as payable to bearer, it follows, that proof of the acceptor's hand only is sufficient to entitle the holder to recover on the bill; and in a particular case, where the bill was drawn by the defendant and others on the defendant, it was determined that a bond fide holder for a valuable consideration might recover the amount against the acceptor in an action for money paid, or money had and received. The effect of the determination of the judges in the House of Lords, with respect to the principal case above alluded to, is as follows. If a bill of exchange be drawn in favour of a fictitious payee, with the knowledge as well of the acceptor as the drawer; and the name of such payee be indorsed on it by the drawer, with the knowledge of the acceptor, which fictitious indorsement purports to be to the drawer himself or his order; and then the drawer indorses the bill to an innocent indorser for a valuable consideration, and afterwards the bill is accepted; but it does not appear that there was an intent to defraud any particular person; such innocent indorsee for a valuable consideration may recover against the acceptor, as on a bill payable to bearer. Perhaps also, in such case, the innocent indorsee might recover against the acceptor, as on a bill payable to the order of the drawer, or on a count charging the special circumstances. On other cases, afterwards brought before the House of Lords on demurrers to evidence, the judges gave their opinion, that it was not competent to the defendants to demurr; and that on the record, as stated, no judgment could be given. The tests discordant to the general rules of bill-negotiation to the amount of a million a year, on fictitious credit, which ended in the bankruptcy of many; but which had at least the good effect of showing that the obligations of law are not so easily eluded as those of honour and confidence.

In an action by an indorsee against an indorser, it is not necessary to prove either the hand of the drawer or of the acceptor, or of any indorser before him against whom the action is brought, every indorser being, with respect to subsequent indorsers or holders, a new drawer. Where an action is by one indorser, who has paid the money, proof must be given of the payment. In an action by the drawer against the acceptor, where the bill has been paid away and returned, it is necessary to prove the hand-writing of the latter, demand of payment by him, and refusal, the return of the bill, and payment by the plaintiff. In an action on the bill by the acceptor against the drawer, the plaintiff must prove the hand-writing of the defendant, and payment of the money by himself; or something equivalent, as his being in privity of execution. Where a bill is accepted, or a bill or note is drawn or indorsed, by one of two or more partners, on the partnership's account, proof of the signature of the party accepting, drawing or indorsing, is sufficient to bind all the rest. When a servant has a general authority to draw, accept, or indorse bills or notes, proof of his signature is sufficient against the master; but his authority must be proved, as that it was a general custom for him to do so, &c. An action on a bill of exchange being by an executor, and upon a debt laid to be due to tellator, it was held necessary to prove that the acceptance was in the life-time of the tellator. Where the defendant suffers judgment by default, and the plaintiff executes a writ of inquiry, it is sufficient for the latter to produce the note or bill, without any proof of the defendant's hand; and on such judgment, a writ of inquiry seems now to be unnecessary.

As to the different subjects of defence, with regard to bills of exchange and notes, the most usual are those which arise either from the total want of consideration, or from the illegality of the consideration for which the bill or note was given. See Consideration.

If a bank-bill, payable to A. B. or bearer, be lost, and it is found by a stranger, payment to him would indemnify the bank; yet A. B. may have recover against the finder, though not against his allegiance for valuable consideration, which creates a property. If the pofferor of a bill accidentally loses it, he must caufe intimation to be made by a notary public before witnesses, that the bill is lost or mislaid, and requiring that payment be not made of the same to any person without its priory. And by flt. 9 & 10 W. III. c. 17, if any inland bill of exchange for 5l. or upwards shall be lost, the drawer of the bill shall give another of the same tenor, security being given to indemnify him, in case the bill so lost be found again. If a bill lost by the pofferor should
should afterwards come into the possession of any person, who pays a full and valuable consideration for it, without knowledge of its having been lost, the drawer and acceptor, if the bill was accepted, must pay it when due to such fair possessor, so that the provisions of the statute may, in many cases, be ineffectual to the loser of the bill. But against the person who finds the bill, the real owner may maintain an action of trover. Stealing bills of exchange, notes, &c., is felony in the same degree as if the offender had robbed the owner of so much money, &c. And the forging of bills of exchange, or notes of money, indorsements, &c., is felony, by 14. 2 Geo. II. c. 25. § 9 Geo. II. c. 18. See also 41. 31 Geo. II. c. 22. § 78. Blackst. Com. vol. ii. p. 466. Jacob’s Law Dictionary, by Tomlins, vol. i. art. Bill.

Bill of Indictment. See Bill above, and Indictment.

Bill of Interpleader. See Interpleader, and Suit in Equity.

Bill of Middlesex, which was formerly always founded on a “plaint” of trespass quam clausum friget, entered on the record of the sheriff of that county, and commanding him to take the defendant, and have him before our lord the king, at Westminister, on a day prefixed, to answer to the plaintiff of a plea of trespass. This bill of Middlesex must be served on the defendant by the sheriff, if he finds him in that county; but if he returns “non est inventum,” then there issues out a writ of “lattitum” to the sheriff of another county, as Berks; which, in the court of king’s bench, is similar to the “teutatum capias” in the common pleas, and recites the writ of Middlesex, and the proceedings thereon; and that it is testified, that the defendant “lattitit et dicturn,” lurks and wanders about in Berks; and therefore commands the sheriff to take him, and have his body in court on the day of the return. But, as in the common pleas, the “teutatum capias” may be sued out upon only a humpased, and not an actual, proceeding “capias;” so, in the king’s bench, a “lattitum” is usually sued out upon only a humpased, and not an actual, “bill of Middlesex;” so that, in fact, a “lattitum” may be called the first process in the court of king’s bench, as the “teutatum capias” is in the common pleas. Yet, as in the common pleas, if the defendant lives in the county wherein the action is laid, a common “capias” suffices; so, in the king’s bench likewise, if he lives in Middlesex, the process must still be by “bill of Middlesex.”

Bill, Navy. See Navy.

Bill, in Parliament, denotes a paper containing propositions offered to the House, to be passed by them, and then to be preferred to the king to pass into an act or law: for the mode of presenting and conducting of which, see Parliament.

Bills, Lombard, are instruments of an uncommon kind and figure, used in Italy and Flanders, and also in France; consisting of a piece of parchment, cut to an acute angle about an inch broad at top, and terminating in a point at bottom; chiefly given where private persons are concerned in the paying out a ship for any long voyage.

The manner is this: the party who is desirous to be concerned in the cargo or venture, carries his money to the merchant, who fits out the ship, where it is entered down in a bill. At the same time, the merchant writes down on a piece of parchment, upwards of an inch broad, and seven or eight inches long, the name of the bearer, and the sum lent, which being cut diagonal-wise, or from corner to corner, each party retains his half. On the return of the vessel, the lender brings his moiety to the merchant, which being compared with the other, he receives his dividend accordingly. Much the same is practised in Holland by those who lend money on pledges: the name of the borrower, and the sum, are written on a slide of parchment, which is cut in two, and half given to the borrower, and the other half fastened to the pledge; that, upon comparing them together again, the borrower may receive his goods, on paying the money stipulated.

Bill, to note on. See Note, and Bill of Exchange.

Bill, to protest. See Protest, and Bill of Exchange.

Bills, bank, are notes or obligations signed in behalf of the company of the bank, by one of their drawers, for value received. See Note, and Bill of Exchange.

Bill of credit. See Credit.

Bill of entry, an account of goods entered at the custom-house, both inward and outward; in which are expressed, the name of the merchant importing or exporting, the quantity, number, and mark of the goods, and place from or to which they are imported, or to be exported.

Bill of lading, an instrument signed by the master of a ship, acknowledging the receipt of a merchant’s goods, and obliging himself to deliver them to the place to which they are consigned, in good condition. Of such bills there are usually three: the first, kept by the merchant; the second, sent to the factor to whom the goods are consigned; and the third, kept by the master of the ship. See Charter-party.

Bills of mortality, are weekly lists compiled by the parish-clerks in and about London, containing the numbers of such as die of each disease, as well as of those that are born every week. See Mortality.

Bill of parcels, an account of the particular sorts and prices of goods bought, given by the seller to the buyer.

Bill of rights. See Rights.

Bill of sale, is an instrument or writing which a person wanting a sum of money, and delivering goods as a security to the lender, gives to him, empowering him to sell the said goods, in case the sum borrowed is not repaid, with interest, at the time appointed. See Sale.

Bill of store, a licence granted to the custom-house to merchants, to carry such furs and provisions as are necessary for their voyage, custom-free.

Bill of sufferance, a licence granted to the custom-house to a merchant, to fulfill him to trade from one English port to another, without paying custom.

Bill, or Bear, perjury, in Ornithology, the elongated horny processes or mandibles of birds. The form of the bill varies greatly in different kinds of birds, that they afford the most permanent character by which these creatures may be arranged. In the distribution of families, Linnaeus first notices the structure of the bill, the tongue, and mandibles; and these parts constitute almost exclusively (with the legs) the distinction of the genera likewise. See Ornithology, and Anatomy of Birds.

The Phoenicopeter’s bill is a true hyperbola, pointed at the end like a sword; and what is remarkable, the upper bill of this bird moves in eating, the lower being fixed, which is the contrary of what is found in all other kinds. The wood-pecker’s bill is flanging, and sharp enough to dig holes, and build in the heart of the hardest timber. See Phoenicopeterus and Picus. Phil. Trans. N. 214. p. 153. N. 35. p. 529.

In the island of Ferro, a fixed reward is given for the bills of ravens and birds. All watermen are obliged to bring a certain number yearly to the country courts, at the feast of St. Olau; when they are thrown into a heap, and burnt in triumph. Plott gives divers instances of monstrous irregularities
The grand jury indorsing a bill whereby any crime punishable in that court, is presented to them, with the words billa vera, signify thereby, that the presenter has furnished his preface with probable evidence, and worthy of farther consideration; whereupon the party presented is sued to stand indicted of the crime, and bound to make answer thereto, either by confessing or traversing the indictment. See Bill in Law, supra.

BILLANCOURT, in Geography, a town of France, 4 miles S.W. from Paris.

BILLARD, or Billet, in Ichthyology, an English name, in some places, for the young coal-fish, Gadus carbonarius, when a year old; measuring at that time from 8 to 10 or 15 inches in length.

BILLAU, in Geography, a river of Silesia, which runs into the Neisse, near the town of Neys.

BILLE, a town of France, in the department of the Ille and Vilaine, and the chief place of a canton, in the district of Fougeres, 14 leagues south of Fougeres.

BILLEKA, a town of Poland, in the palestinate of Lemberg, 10 miles east of Lemberg.

BILLERDECK, a town of Germany, in the circle of Weilphalia, and bishopric of Münster, 5 miles N.E. from Coesfeld.

BILLERICA, a township in Middlesex county, Massachusetts, in America, incorporated in 1655, containing 1200 inhabitants, being 20 miles north of Boston, and watered by Concord and the Stow and Francon rivers, which run north-easterly into Merrimack river.

BILLERICA, in Geography, a market-town of Essex, England; is built on a fine eminence, commanding a view of a rich vale between the town and the river Thames. Though enjoying the advantage of a weekly market on Tuesdays, it is only a hamlet in the parish of Great Baddow, the church of which is situate about one mile and a half south of this place. For the accommodation of the inhabitants, a chapel is endowed and supported in the town. Here are two annual fairs; and the whole parish contains 250 houses, and 1472 inhabitants. Billerica is 23 miles N.E. from London. Morant's history of Essex.

BILLESDON. See Bilston.

BILL. See Headborough.

Billet, or Billette, in Heraldry, signifies a figure whose length exceeds its breadth: when the arms are charged with several of them, they are then called Billettes. The royal arms of Navarre, prince of Orange, is Jupiter Billette fol, a bice rampart of the left. Authors differ much in regard to the antiquity of the billet, which was evidently a piece of wood cut in the form of a parallelogram, and retains that name and shape to this day.

Billet, Billette, in the French Customs, a little sign in form of a cask, hung up at places where toll is to be paid to advertisements and carriages, that before they advance farther, the dues are to be paid to the king, or the lord who is charged with the care of repairing the highways.

Billets for fuel, are small pieces of wood, which must be 3 feet 4 inches long, and 7/8 in compass, &c. Juvicles of peace shall enquire, by the oaths of six men, of the affize of billets; and these which are under size are forfeited to the poor. Stat 43 Eliz. c. 14. 9 Ann. c. 15. 10 Ann. c. 6. See Fuel.

Billets of gold, denote wedges or ingots of gold, mentioned in the text. 27 Ed. 3. c. 27.

BILLETING of jolters, in Military Language, is the lodging or quartering of them in the houses of the inhabitants of a place. This is done by a ticket, called a billet, which entitles each holder, by act of parliament, to candles, vinegar, salt, and either small beer or cider, not exceeding five pints per day, gratis; with the use of fire, and the necessary utensils fordining and eating their meat.

BILLETING, among Sportmen, denotes the ordure and dung of a fox.

BILLETINS. See Brothers of Charity.

BILL, JAMES DE, in Biography, a French Jesuit, was born in Compiegne in 1602, and entered the society of Jesuits in 1619. He taught philosophy for three years, and was a preacher for more than twenty years. He was rector of Chalons, Langres, and Sens; but he is best known by his mathematical writings, which are as follows: "Nova Geometriae Chasius Algebrar," Paris, 1613, 4to. "Tabula Lodoice de doctrina eclipson," Dijon, 1656, 4to. "Tumulos Astrallogiae Judicialis," Paris, 1650, 4to. "Dioptrum Geometria," Paris, 1650, 4to.; "Opus Astronomicum," Dijon, 1661, 4to.; "Decours de la Comite qui a para l'an 1665, au mois d'Avril," Paris, 1655. 4to.; "Chiffres Astronomico de mota Cometarum," Dijon, 1660, 8vo.; "Doctrina analytica inventum novum," Toulouse, fol. Moreiri.

BILLIARDS, an ingenious kind of game played with two small ivory balls, on an oblong table, covered with green cloth, and placed exactly level; which balls are driven by flicks made on purpose, alternately against each other, with a view to push the passive ball into hazards, or holes, on the edges and corners, according to certain laws or conditions of the game.

The word comes from the French billiard, of bile, the ball made use of; and that from the Latin pilis, a ball.

This game was invented by the French, and practised by the Germans, Dutch, and Italians; and is now a favourite diversion among persons of the first rank in many parts of England. The table on which it is played is about 12 feet long, and 6 wide, and not only covered with green cloth, but surrounded with cushions to prevent the balls from rolling off, and to make them rebound. It has six holes, nests, or pockets, which are fixed on the four corners, and in the middle, opposite to each other, for receiving the balls, which, when put into these holes, are called hazards. The making of a hazard, or putting the adversary's ball into the hole at the usual game, is reckoned for two in favour of the player.

The game is played with flicks, called maces, or with cues. The mace is a long straight stick, with a head at the end, and is the most powerful instrument of the two; the cue is a thick stick decreasing gradually to a point of about half an inch in diameter; this instrument is played over the left hand, and supported by the forefinger and thumb. This is the only instrument in vogue abroad, and is used with astonishing dexterity by the Italians, and some of the Dutch; but in England the mace is the prevailing instrument, though regarded with some degree of contempt by foreigners, as the use of it does not require so much dexterity as the cue; however, the mace is used for the peculiar advantage of "trailing," as it is called; or of following the ball with it to such a convenient distance from the other ball as to make it an easy hazard. The several degrees of trailing are variously denominated by the connoisseurs; e.g., the mace, the sweep, the long stroke, the trail, and the dead
B I L I A R D S.

trail or turn up, all which secure certain advantages to a good player; and even the butt-end of the cue becomes very powerful, when it is made use of by a good trailer. The varieties of this game are denominated the "white winning game," the "white rooting game," the "red or carambolic winning game," and the "red rooting game." The game usually played is the first of these, and 12 is the number. The rules for this game are as follows: 1. String for the lead and choice of balls; the person who does this must stand within the limits of the corner of the table, and not place his ball beyond the fringing nails or spots: the lead is won by him who brings his ball nearest the cushion. 2. If after the first person has frunged for the lead, the adversary should make his ball touch the other, he loses the lead; and if the player holes his own ball in fringing or leading, he loses the lead.

3. If the leader follows his ball with either mace or cue beyond the middle hole, it is no lead; and it is at the option of his adversary to make him lead again. 4. The striker who plays at the lead must stand with both his feet within the limits of the corner of the table, and not place his ball beyond the fringing nails; and his adversary (only) is bound to see that he stands and plays fairly; otherwise the striker wins all the points he made by the stroke.

5. When a hazard has been left in either of the corner holes, the lead is obliged, if his adversary require it, to come from the end of the table, where the hazard was left; but if the hazard was left in either of the middle holes, it is at the leader's option to lead from either end of the table. 6. If the striker does not hit his adversary's ball, he loses one point; and if he by the false stroke his ball should go into a hole, over the table, or on a cushion, he loses three points; and he also loses the lead. 7. If the striker holes his adversary's ball, or forces it over the table, or on a cushion; or if he holes both balls, or forces them over the table, or on a cushion; in either case he loses two points. 8. No person has a right to take up his ball without permission from his adversary. 9. If the striker should touch or move his own ball, without intending to make a stroke, it is deemed an accident; and his adversary, if he require it, may put the ball back in the place where it stood. 10. If the striker force his adversary's ball over the table, and his adversary should chance to stop it, so as to make it come on the table again, the striker wins two points; if the striker should force his own ball over the table, and his adversary should chance to stop it so as to make it come on the table again, the striker loses nothing by the stroke, and has the lead; but if the striker miss the ball and forces it over the table, and it should be stopped by his adversary, he loses one point, and has the lead, if he chusses. 11. If the striker, in playing from a cushion or otherwise, by touching the ball, makes his mace or cue go over or beyond it, he loses one point; and, if his adversary require it, he may put the ball back, and make him pass the ball. 12. If the striker, in attempting to make a stroke, doth not touch his ball, it is no stroke; and he must make another trial; but if when the balls are near each other, the striker should accidentally make his ball touch the other, it is a stroke, though not intended. 13. If the striker who plays the stroke should make his adversary's ball go to near the brink of a hole, as to be judged to stand still, and afterwards fall into it, the striker wins nothing, and the ball must be put upon the same brink where it stood, for his adversary to play from the next stroke. 14. If the striker's ball should stand on the brink or edge of a hole, and if in playing it off he should make the ball go in, he loses three points. 15. If a ball should stand on the brink or on the edge of a hole, and should fall into the hole, before or when the striker has delivered his ball from the mace or cue, so as to have no chance for his stroke, in that case the striker and his adversary's ball must be placed in the same position, as nearly as possible, and the striker must play again. 16. The striker is obliged to pass his adversary's ball, more especially if he misfires the ball on purpose; and it is at the option of his adversary to oblige him to place the ball where it stood, and play until he has passed. 17. If the striker plays both balls from his mace or cue, so that they touch at the same time, it is deemed a foul stroke; or if the adversary discover it, and a dispute should arise, an appeal may be made to the company present; and the marker, if required, must go round the table to each person separately, and ask if he has any bet depending, and if he understands the game and the disputed subject; and if the company and marker determine it to be a foul stroke, it is at the adversary's option (if not holed) either to play at the ball, or to take the lead; but if the adversary doth not discover it to be a foul stroke, the striker may reckon all the points he made by the false stroke, and the marker is obliged to mark them: and no person has a right to discover to the player whether a stroke be fair or foul. 18. If by a foul stroke the striker should hole his adversary's ball, he loses the lead; but by such a stroke he holesthis own or both balls, or forces his own or both over the table, or on a cushion, he loses two points. 19. If the striker plays on a ball when it is running or moving, it is deemed a foul stroke; and if he plays with both feet off the ground, without leave of his adversary, it is a foul stroke: if he plays with a wrong ball, he loses the lead, if his adversary require it. 20. If the ball should be changed in a hazard, or on a game, and it is not known by which party, the hazard must be played by each party with their different balls and then changed. 21. If the striker plays within his adversary's ball, and hole, or forces the ball at which he played over the table, &c. it is deemed a foul stroke. 22. If the striker plays with his adversary's ball and holes, or forces the ball with which he played over the table, &c. he loses two points; and if he misfires the ball, three points. 23. If the striker plays with his adversary's ball and misfires it, he loses one point; and if his adversary disavows that he hath played with the wrong ball, he may part the balls, and take the lead if he pleases. 24. In all these cases of the striker's playing with the wrong ball (if discovered), his adversary must play with the ball, at which the striker played throughout the hazard, or part of the balls and take the lead. 25. Whoever stops a ball when running with hand, stick, or otherwise, loses the lead, if his adversary does not like the ball he has to play at the next stroke. 26. Whoever retains his adversary's stick when playing, it is deemed foul. 27. If the striker drops or puts his ball out of its course, when running towards either of the holes, and, if adjudged by the marker and company to be going into a pocket, if he misfires the ball he loses one point, and if going into a hole by the same stroke, three points. 28. If the striker drops or puts his adversary's ball out of the course, when running towards or into a hole, or puts it into a hole, it is deemed a foul stroke. If the adversary does the same, in the foregoing cases, he is subject to the same penalties as the striker. 29. He who plays the ball when the ball is running, or throws his stick across the table, so as to occasion any的意见 to his adversary, or hinders the ball when running, makes in either case a foul stroke; and if his own ball was running towards or near the hole, when he blows on it, he loses two points. 30. If the striker leaves the game before it is finished, and will not sit out, he loses the game. 31. Any person, whilst playing, may change his mace or cue; and neither party has a right to object to either mace or cue being played within the said game; but when the parties agree to play mace against cue, ...
eue, the mace-player hath no right to use a cue, and vice
veris, without leave of the adversary. 32. When a person
agrees to play with the cue, he must play every ball within
his reach with its point, and if he agrees to play with the
but of the cue, he must not use the point, without permission;
when the parties agree to play point and point of the cue, nei-
ther has a right to use a butt during the match, without per-
mission; but they have a right to play with a long cue over a
mace, &c. and when they agree to play all points with the
same cue, they have no right to use any other during the
game. 33. If it be proposed to part the balls, the proposer,
if the adversary agree to it, loses the lead. 34. Two mihes
may not make a hazard, unless the contrary is previously
settled. 35. The better is to abide by the player who made
the determination of the hazard, or on the game; and they have
a right to demand their money, when their game is over,
to prevent disputes. 36. The striker has a right to com-
mand his adversary not to stand facing him, or near him, so
as to annoy or molest him in the stroke. 37. Each person
is to attend to his own game, without asking questions. 38.
No person in the room has a right to lay more than the odds
on a hazard or game; and in questionable cases appeal should
be made to the marker, or to the table of odds hung up in
the room. 39. When four persons play, the game is fif-
teen in number; and each party has a right to consult
with and direct his partner in any matter respecting the
game, &c.

The "white losing-game" is the common winning-game,
and twelve is the number. This depends entirely upon the
defence, and the knowledge of the degree of strength with
which each stroke should be played, either to defend or
make a hazard; for if a person who has a competent know-
ledge of the game should not have a hazard to play at, he
must endeavour to lay his own ball in such a position, that his
adversary may not have one to play at the next stroke. In this
game, if the striker misses the ball, he loses one, and if by the
fame stroke his ball goes into a hole, he loses three points; if
he strikes his adversary's ball he loses two points; if either or
both balls be forced over the table, or on a cushion, nothing
is reckoned, and the striker loses the lead, but if he misses his
adversary's ball, and forces his own over the table, &c. he loses
one point and the lead; if either of the parties forces either
or both balls over the tables, he reckons nothing; and the
striker loses the lead; if the striker holes his own ball, he
wins two points; if he holes both balls, he wins four points;
if he holes either ball, and forces the other over the table;
&c. he only loses the lead. The "winning and losing game"
is a combination of both games; in which all balls that are
put in by striking first the adversary's ball, reckon towards
game; and holing both balls reckon four. At this game and
the losing, knocking over, or forcing the balls over the cushion,
goins for nothing; the striker only losing the lead. The "choice of balls" is choosing each time which ball the
player pleases, which is without doubt a great advantage,
and is generally played against losing and winning.

"Bricole," is being obliged to hit a cushion, and make
the ball rebound or return to hit the adversary's ball, other-
wise the player loses a point. This is a great disadvantage,
and is reckoned between even players to be equal to receiving
about eight or nine points.

"Carambole," is a game newly introduced from France.
It is played with three balls, one being red, which is neutral,
and is placed upon a spot on a line with the striking nail,
(i.e. that part of the table from whence the player strikes
his ball at first setting off, and which is generally marked
with two brass nails). Each antagonist, at the first stroke of
a hazard, plays from a mark which is upon a line with it at
the other end of the table. The chief object at this game
is, for the player to hit with his own ball the other two balls:
which is called a carambole, and by which the player
wins two. If he puts in the red ball he gets three, and
when he holes his adversary's ball he gets two; so that seven
may be made at one stroke, by caramboiling and putting
in both balls. This game resembles the losing, depending
chiefly upon particular strengths, and is generally played
with the cue. The game is fifteen up; nevertheless it is
reckoned to be more than the common game. The
next object of this game, after making what we have distin-
guished by the carambole, is the back shot, that is, making the
white ball, and bringing the player's own ball and the red
one below the striking nail, from whence the adversaries be-
gins. By this means the opponent is obliged to play bricole
from the opposite cushion; and it often happens that the
game is determined by this situation.

"The Russian carambole," is a game that has fill more
lately been introduced from abroad, and is played in the fol-
lowing manner: The red ball is placed as usual on the spot
made for that purpose; but the player, when he begins, or
after having been holed, never places his ball on any particu-
lar place or spot; or being at liberty to put it where he
pleases. When he begins to play, instead of striking at the
red ball, he leads his own gently behind it, and his antago-
nist is to play at which he thinks proper; if he plays at the
red ball and holes it, he scores three as usual towards the
game, which is twenty-four instead of sixteen points; and
the red ball is put upon the spot again, at which he may
strike again, or take his choice which of the two balls to
use at, always following his stroke till both balls are off the
table. He is entitled to two points each time that he car-
amboles, the same as at the other game; but if he caram-
boles and puts his own ball into any hole, he loses as many
as he might have got had he not holed himself; for example,
if he strikes at the red ball, which he holes, and at the same
time caramboles and holes himself, he loses five points; and
if he holes both balls when he caramboles, and likewise his
own, he loses seven, which he would have got if he had not
holed his own ball. In other respects it is played like the
common carambole game.

"The Bar-hole," is so called from the hole being harred
which the ball should be played for, and the player striking
for another hole; when this game is played against the com-
mon game, the advantage for the latter, between equal
players, is reckoned to be about six.

The player at the one-hole, though it seems to those who
are not judges of the game to be a great disadvantage, has
in fact the best of it; for as all balls that go into the one
hole reckon, the player endeavours to lay his ball constantly
before that hole, and his antagonist frequently finds it very
difficult to keep one or other ball out, particularly on the
leads, when the one player lays his ball (which he does as
often as he can) on the brink of the hole; leading for that
purpose from the opposite end, which in reality he has no
right to do; for the lead should be given from the end of
the table at which the hazard is made; but when a person
happens to be a novice, this advantage is often taken.

"The four game," consists of two partners on each side,
as the common winning game; when play by succession after
each hazard, or two points lost. The game is fifteen up,
so that the point or hazard is an odd number, which makes
a miss at this game of more consequence than it is at another;
being as much at four, five, six, or eight, as it is at five, seven,
or nine, at the single game.

"Hazards," are so called because they depend entirely
upon the making of hazards, there being no account kept
of,
of any game. Any number of persons may play by having bells that are numbered; but the number seldom exceeds six, to avoid confusion. The person whose bell is put in, pays so much to the player according to what is agreed to be played for each hazard; and the person who misses, pays half the price of a hazard to him whose bell he played at. The only general rule is, not to lay any bell a hazard for the next player, which may be in a great measure avoided, by always playing upon the next player, and either bringing him close to the cushion, or putting him at a distance from the rest of the Lars. The table, when hazards are played, is always paid for by the hour.

BILLIAT, in Geography, a town of France, in the department of the Ain, and chief place of a canton, in the district of Nantua, 23 leagues E. of Nantua.

BILLICHA, in Ancient Geography, a river of Asia in Mesopotamia, which rises in the mountains of Osrhen, south of Edessa, and pursuing a south-easterly course, discharges itself into the Euphrates, at the town of Nice-phuron.

BILLIGHEIM, in Geography, a town of Germany, in the palatinate of the Rhine, 4 miles S. of Landau, and 16 S. W. of Spire.

BILLIGRATZ, a town of Germany, in the duchy of Camiola, 4 leagues N. of Landau.

BILLINGEN, a town of the Netherlands, in the duchy of Luxemburg, 20 miles E. of Spa.

BILLINGSGATE, a fish-market of London, kept every day, and the toll of which is appointed by statute. All persons buying fish in this market may fell the same in any other market by retail; but none but fishmongers are allowed to fell it in huge; and if any person shall buy any quantity of fish at Billingsgate for others, or any fishmonger shall engross in the market, they incur a penalty of 20l. Tins imported by foreigners shall be forfeited, and the veil &c. 10 & 11 Will. III. c. 24. 1 Geo. I. Stat. 2. c. 18. § 1. &c.

BILLINGSPORT, a place on the river Delaware, in America, situate 12 miles below Philadelphia, which was fortified in the late war, for the defence of the channel, and opposite to which were sunk frames of timber, headed with iron spikes, called chevaux-de-frise, in order to prevent the British ships from passing. After the war they were rifled by a curious machine, invented at Philadelphia for this purpose.

BILLIS, in Ancient Geography, a small river of Asia Minor, on the confines of Parthia, on the borders of which was seated the town of Tarsus, mentioned by Scalibut.

BILLITON, in Geography, one of the Zunda islands in the Indian ocean, N. E. of the lower part of Sumatra, and E. of Banca. (See Straits of Banca.) S. lat. between 2° 30' and 3° 30'. E. long. between 107° 45' and 108° 26'.

BILLOM, a town of France, and principal place of a canton, in the district of Clermont, and department of Pay-de-Dome, 4 leagues E. N. E. from Clermont. The town contains 5,110 inhabitants, and the canton 13,711. The territorial extent comprehends 115 kilometres, and 10 communes. N. lat. 45° 53'; E. long. 3° 14'.

BILLON. Billon, in Coinage, a kind of base metal, either of gold or silver, in whose mixture copper predominates.

The word is French, formed, according to Meigen, from the Latin bulla, or bulla, bullion. According to M. B. utter, bullion of gold is any gold beneath standard, or twenty-one carats; and bullion of silver, all below ten penny-weights. But, according to others, and among the rest, M. Berard, gold and silver beneath the standard, as far as twelve carats, and six penny-weights, are properly base gold and silver, and all under those billion of gold, and billion of silver, because copper is the prevailing metal. The writers on numismatic science appropriate the term billion to signify metals of copper alloyed with a very small quantity of silver.

BILLES, in Geography, a rock in the Atlantic, near the west coast of Ireland, 6 miles N. W. from the island of Clare, and 6 S. E. from Achill-head.

BILLY, JAMES de, in Biography, was born in 1535, at Gwy in Picardy, and devoting himself to study, he entered the church, in which he possessed some benefices. After suffering considerably in the civil wars, he retired to Paris, and died in the house of his friend Gilbert Gearnbruch, in 1581. His works, both in prose and verse, were numerous; but the most valuable and his Latin translations of the Greek fathers are: "S. Gregorii Nazianzeni opera omnia," fol. 1569 and 1583; "Interpretatio latina in priorum libri S. Irenee. adv. Haeret. capitum," fol. 1577; "S. Joh. Damascenii opera," fol. 1577; "Sidorli Pelabonii Epistolae, Gr. & Lat. (3 scril books)," fol. 1577." and translations of some pieces of St. Chrysostom, inserted in the Paris editions of his works, in 1581, &c. Morei.

BILLY, in Geography, a town of France, in the department of the Allier; 13 leagues N. E. of Gannat.

BILMA, a defter country in the north of Africa, being a part of the Great Desert, or Sahara, and a prolongation of the Libyan desert to the S. W. bounded on the N. by the Tibesti mountains, and the desert of Berdaou, on the E. by Kawar or Kuur, on the S. by Boroum, and on the W. by Zegzag, Agades, Aoulou, Ganat, &c. N. lat. about 23 to 25. W. long. about 20°. The salt lake of Dumaroo, the Chelondes Pulus of Potonomy, is said to be situated in the desert of Bilma.

BILLOBUS, in Entomology, a species of Scarabeus, with two prominent lobes on the thorax; a simple horn on the head, and wing-cases frilled. Inhabits the south of Europe. Fabricius.

Bilobus, a species of Dysiscus, of an oblong-ovate form and black; mouth, vertical two-lobed spot, thorax, futural line, base, and margin of the wing-cases yellow. Linn. Mon. Lep.

BILLOBUS, a species of Cicindela (Sphingus), with an obtusadiated thorax; wing-cases greyish or reddish; vent with two lobes. Linn. Mon. Lep. A native of Europe.

Bilobus, or Oribatella, a species of Scarabaeus, called the Warted Plosopher, by Lathan. It is an inhabitant of the coast of the Malabar. The bill and legs are yellow; frontal skin naked, and procumbent in two pointed lobes; body above yellowish green; beneath white. Griselin, &c. The crown, band on the tail, and quill-feathers are black; broad across the eyes, greater wing-coverers, and some of the tail-feathers at the end white. This is Physicus a Lomberg of Buff. Hist. Ort. and Plutarco de la clef de Malabar, p. 124. of the same author. Length nine inches and a half.

BILLOCULAR, in Botany, a term applied to a cappula, having two cells.

BILLYAR, in Geography, a town of Russia, in the government of Simbirsk, on the left side of the Volga, 10 miles S. E. of Simbirsk.

BILGISUS, or BILLYHUS, Louis de, of Rotterdam, in Holland, in Biography, acquired much fame for a town, about the middle of the 17th century, for a supposed new method of preserving bodies from putrefaction, and of digesting them without occasioning an effusion of blood. By his method of preparing the bodies, they were said to preserve their flexibility as well as freedom from putridity for ages; so that the
they might be distracted during the summer, and remain
under the demagoguer’s hands for weeks, months, or
years, if necessary, without emitting any offensive
fume. De Bilis had the art of gaining such credit to his
professions, that he is said, by Heller, to have sold his
secret to the university of Louvain for 22,000 ducats.
He demanded a much larger sum, and certainly he had
his preparations answered the high ene who believed on them by their favours, the secrect
would have deferred it. Prior to the sale he had sent one
of his bodies to the theatre at Leyden, at which Denungius,
one of his warmest admirers says, “De fided fuperat omnem,
exceptum humanis cadaver, recente mortuorum disces, tanto
theatro digantmillinopos.” De admirandum famam, nobilis
nimi viri L. D. Bilis, p. 362. But not contented with the
fame and money acquired by his secret, for he sold his pre-
bared bodies at high prices, he pretended to have made dis-
covers in the structure of the liver, and in the lymphatics,
by which he exposed himself to deserved contempt, it ap-
ppeared that he was totally ignorant of the art of anatomy,
in which he affected to be a master. He is said to have died
phthisical from the effects of the putrid air inhaled while
preparing his bodies, and in a few years his preparations,
which were to have lasted for ages, were totally destroyed.
His productions, which were numerous, and excited
much interest at the time, were collected and published
in 1692, in 4to, under the title of, “De Bilis inventa
anatomica antiquo-nova cum clarissimis virorum epito-
is, et testimoniis, ab Ioannis ab Horrorn, et Pauli Barhette, reftan-turant, interprete Geocome Bueno.
Amit.

BILSAH, in Geography, a city of Hindostan, and capi-
tal of a circle in the Malwa country; 416 miles S. W. of
Penares, 867 N. W. of Calcutta, by Guru Mundhah, 560
N. W. of Hydrabad, 357 S. W. of Lucknow, 249 N. W.
of Nagpur, 110 nearly E. of Ougine, and 496 N. E. of
Poonah. Bilsah, which is almost in the heart of India,
affords tobacco of the most fragrant and delicious kind
throughout that whole region, and which is distributed ac-
cordingly. N. lat. 23° 30’. Long. 77° 53’.

BILSEN, a town of Germany, in the circle of Wëf-
phalia, and bishopric of Liege, chief place of a canton in
the district of Maerfich, and department of the Lower Meuf,
feated on the Deemer, possessing the privileges of a city, but
of no great consideration. 14 miles N. of Liege. The town
contains 1925 persons, and the population of the canton in-
cludes 9388. The territory comprehends 170 kilometres,
and 16 communes.

BILSKOJ, a town of Siberia, on the Bilain, 90 miles
N. W. of Irkutik.

BILSON, Thomas, in Biography, a learned prelate of
the English church, was born at Winchester, and educated
at Wykeham’s school near his native city. In 1565, he
was admitted fellow of New College, Oxford, after having served	
two years of probation. He took in due course his severa-
la degrees of bachelor and master of arts, and also of bachelor
and doctor of divinity; the half of which was conferred on
him in 1580. In his earlier years he was fond of poetry,
philosophy, and physic; but after having entered into orders
he confined himself wholly to divinity, and became an excel-
lent preacher. His first preference was the masterhip of
Winchester school; and he afterwards became prebendary of
Winchester, and at length warden of the college, in which office
he was instrumental in preserving the revenues of it,
when they were likely to have been lost by forgery. In 1583,
he published a treatise entitled “The true Difference be-
tween Christian Submission and unchristian Rebellion,” dedi-
cated to queen Elizabeth, and composed for the purpose
of confuting those catholic writers who attacked her right
to the throne, and to the allegiance of her subjects. In this
treatise paffages occur that are favourable to refrinace in
certain cafes, and which have not escaped the censure of later
advocates of passive obedience. This was succeeded, in 1593,
by his “Perpetual Government of Christ’s church, &c.” de-
signed to shew, that from the Mosaic institution to the modern
ages of Christiarty, the church has been governed by
pastors and teachers of different ranks, superior and subor-
dinate, and esteemed one of the beast books in favour of epis-
copy. In consequence of this publication he was promoted
to the see of Worcester in 1596, from which he was tran-
fledged in 1597 to that of Winchester, where he was also ap-
pointed a privy councillor. About this time he delivered a
course of sermons at Paul’s crofs, against some of the tenets
of the Puritans, on the subject of redemption, and the de-
cent of Christ into hell, which occasioned a controversy with
the leaders of that sect. In the course of this controversy
the bishop maintained the actual descent of Christ into hell,
or the place of the damned, an opinion which was then deemed
orthodox, but which has since been rejected by the best ex-
positors of the 39 articles, and by every rational divine.
This prelate took a lead in the Hampton-court conference,
where he was distinguished by his learning; and in general
he was one of the most able advocates in favour of the church
of England. To him, in conjunction with Dr. Smith, after-
wards bishop of Gloucester, was committed the care of revi-
ving and finishing the new version of the Scriptures, called
king James’s Bible. He was also one of the delegates who
pronounced the sentence of divorce between the earl of
Effex and his countess. This learned bishop, whose life was a
course of incessant labour for the public good, and whose pri-
ivate character uniformly corresponded with his high flation,
died in 1616, and was buried in Welminter Abbey. Biog.
Frat.

BILSTEIN, in Geography, a town of Germany, in the
circle of the Lower Rhine, and capital of a bailiwick, in
the duchy of Westphalia, seated on a mountain; 42 miles E.
of Cologn.

BILSTON, a large village, or chapelry, of Staffordshire,
England, is remarkable for the number of its houses and
inhabitants, without having the advantage of a chartered
market or fair. From its proximity to Birmingham and
Wolverhampton, and having the advantage of a navigable
canal near it, Bilston abounds with manufactures, among
which those for japanned and enamelled goods are the
principal. Furnaces for melting iron ore, forges and flitting
mills, mostly worked by steam engines, also abound here.
In the vicinity of the town are several coal mines, which pro-
duce great quantities of that fossil. An orange coloured
sand is also abundant, and is in much request by the artizans,
as a sand to cast metals in. Here is a quarry of remark-
able bones, lying horizontally in twelve strata, each pro-
gressively increasing in thickness from the top downwards.
The bone is mostly appropriated to the making of ciffers,
troughs, &c. Bilston is in the parish of Wolverhampton,
but is a distinct township for all parochial proceedings. There
is a chapel of modern erection; also two meeting-houses,
and a free-school. This chapelry is within the exempt jurid-
diction of the dean of Wolverhampton, and is a perpetual
curacy. Bilston is 127 miles N. W. from London; it con-
tains 1305 houses, and 6914 inhabitants. Shaw’s History
of Staffordshire.

BILTON, or BILSTON, a small manufacturing town of
Suffolk, England. The making of blue cloths, blankets,
and yarn, give employ to most of the inhabitants. Here
was formerly a consideruble market on Wednedays, but it
is nearly defecated, and the whole tins is much reduced. 
were two annual fairs. The parish contains 121 houses, and 744 inhabitants.

BILL, in Natural History, a name given by many of the Arabian writers to a genus, which though they often mention, yet they have no where given us a description of. Some have imagined it to be the *oppa* and others the *kibry*; but it appears more probable to have been a species of crystal; probably the pebble-crystal of the East Indies, which is considerably finer than the common flint-crystal; and is often sold under the name of the white sapphire, though considerably inferior, both in lustre and hardness, to the true white sapphire.

BIMA, in Geography, a river of Hindoostan, so called by Mr. Pennant. See Benmah.

BIMACULARIS, in Entomology, a species of Phalena (Pylarita, Gmel.), found in Europe. The anterior wings are glaucous brown, with two brown spots. Linn.

BIMACULATA, in Conchology, a species of Tellina, found in the European and American seas. This shell is of a somewhat rounded triangular shape, rather broad, smooth, white, with two triangular spaces within. It is a small shell, being usually half an inch in length, and sometimes, though rarely, of a yellowish colour. Linnæus, Donovan Brit. Shells, &c. On the English coast this is a scarce species.

BIMACULATA, in Entomology, a species of Silpha, found in Barbary. It is ovate and black; head of the antennae, globule; legs ferruginous. Gmelin. The margin of the thorax is rather ferruginous, and the middle of each wing is marked with a red spot.

BIMACULATA, a species of Chrysomela, of an oblong shape, and black; wing-cases tesselate, with a black spot on each. Inhabits America. Fabricius.

BIMACULATA, a species of Leptura, of a rufous colour, with cylindrical thorax; wing-cases dotted, with a spot and undulated break of white on each. Schaller, &c.

BIMACULATA, a North American species of Cantha- ris, with a ferruginous thorax; having a black spot, wing-cases tesselate, with a black spot at the tip. Fabricius.

BIMACULATA, a species of Neoclista, of a large size, that is found in Hungary. It is ferruginous, with the breast black; wing-cases tesselate, with a black spot on each. Fabricius. Mant. Inf.

BIMACULATA, a species of Durostis, that inhabits India. The wings are very entire, fringed, with a red spot; body brown, green. Linn. Fabr. &c.

BIMACULATA, a species of Sphinx (Zygna), of the middle size, that inhabits America. The wings are above and beneath black, with two yellow spots on the anterior wings. Gmel. Fabr. &c.

BIMACULATA, a species of Phryganea, described by Degener. The wings are brown, with a double yellow lateral spot. Linn. &c.

BIMACULATA, a species of Tipula, found in Europe. The wings are hyaline, with two brown spots; abdomen spotted, with ferruginous in the middle; antennae feathered. Linn. Fr. Suec. Off. This specific character is liable to some exception, for it is only the female which has the abdomen spotted with ferruginous; that of the male is immaculate.

BIMACULATA, a species of Musca, found in New Holland, and described by Swederus, Nov. Act. Stockh. The colour is light blue, with a whitish spot on each side of the breast: abdomen green, and blue at the base.

BIMACULATA, a species of Scolia, described by Fabricius. It is black, hairy, with two pale yellow spots, posterior yellow. A variety of this insect with fulvous instead of yellow spots, is mentioned by Pelag. Inf. Calibr. The former inhabits North America.

BIMACULATA, a species of Aranea, of a small size, that is found in Europe. The abdomen is subretund, cheetish, with two white spots. Gmelin. Abdomen rather depressed.

BIMACULATA, a species of Tentredo, of a pale colour, with the eyes, base of the abdomen above, and two spots on the breast, black. Linnæus Musc. Lich.

BIMACULATA, in Zoology, a species of Lacerta, described by Sparrmann, Nat. Aed. Stockh. The tail is carinated, toothed, and twice the length of the body: all the toes lobed. Inhabits the woods of St. Enlace and Pennsylvania, living under ground, or in the hollows of trees, and depositing its eggs in the earth. The body is blue, tinged with green, and thinly spotted with black, but having two larger than the rest on the shoulders, from whence it is specifically named bimaculata; on each foot are five toes.

BIMACULATUM, in Entomology, a species of Pha- langium, with the abdomen black, and two white spots. A native of England and Norway. Gmelin.

BIMACULATUS, a species of Scarabæus, with three flight tubercles on the head; wings-cases frilled, with two red spots at the base. Inhabits Germany. Fabricius.

BIMACULATUS, a species of Hister, of a black colour, with the posterior end of the wings-cases red. Linn. Fr. Suec. Found in the dung of oxen. This is Hister jennerius of Scopoli; and Atelous toto niger; cf. latres loris nonnulli friciatis; in celerarii noth de Geoffrey.

BIMACULATUS, a species of Curculio, of a brown colour: wings-cases dotted with cinereous; front and legs black. Inhabits Saxony; and resembles Curculio colus, but is rather smaller.

BIMACULATUS, a species of Cryptoccephalus, of a dusky black, with fulvous thorax, and tesselate wing-cases, with two spots of black. Fabricius. Off. This is Chrysomela melanocephala of Schaller, &c. A native of Italy and Saxony.

BIMACULATUS, a species of Carabus, of a black colour, with a common interrupted band; antennae and feet teeta- ceus. Mant. p. 532. Gmel. Inhabits India. The thorax of this insect is yellow, or black, and sometimes spotted in different specimens.

BIMACULATUS, a species of Dytsicus, of a tesselate colour, with a blackish spot on the wing-cases. Inhabitants France. Size of a grain of rice. Gouan. Gmelin, &c.

BIMACULATUS, a species of Gryllus (Bulla acridum) found in Europe, and described by Herbst. The thorax is brown, with an ochraceous hamule on each face.

BIMACULATUS, a species of Ichneumon. Colour black; front, legs, antennae beneath, anterior part of the thorax, two spots on the wings, and posterior margin of the abdominal segments, except the second, yellow. Linn. Mus. Low. Breeds in the larva of phalana umbria. Scutell raised behind. Inhabits Europe.

BIMACULATUS, is also a species of Ichneumon, that inhabits Austria, and is described by Schrank. It is black, with a yellowish feutel; two last segments of the abdomen with a single gypseous spot on each above.

BIMACULATUS, in Ichthyology, a species of Salmo, the body of which is compressed, and marked with two spots; anal fin with thirty-two rays. Gmelin. This is a native of South America. Seba calls it Tigrus ornamentatus; and Arndt Cerozgonides Ambisniffs.

BIMACULATUS, a species of Labrus, found in the Mediterraean
The dorsal fin is filamentous, body marked with a brown spot in the middle, and another near the tail. Cnid. &c.

**BINACULOSA**, in Entomology, a species of Cocciella, with fulvous wing-cases, having two obsolete white, spiral patches. Herb. Lind. &c.

**BINACULOSA**, a species of Phalana, that inhabits Germany. Colour whitish grey; anterior wings rather clouded; posterior ones with two black spots. Fabricius, &c.

**BIMATRA**, in Ancient Geography, a town of Achaia in Messenia. Prolemi.

**BIMELE** ou finière Linné, in Ornithology, a name given by Buffon to a species of motacilla, likewise called by Linnaeus the palum seneburi, and motacilla palmarum by Gmelin.

**BIMEDIAL**, in Mathematics. When two medial lines, as AB and BC, commensurable only in power, and containing a rational rectangle, are compounded; the A | | B C whole AC shall be irrational, with respect to either of the two, and is called a first bimedial line. But if two medial lines, commensurable only in power, and containing a medial rectangle, be compounded, the whole will be irrational, and is called a second bimedial line. Eucl. lib. x. prop. 28 and 39.

**BINIMI**, in Geography, one of the Bahama islands on the west side of the great Bahama bank, near the gulf of Florida. Its compass is about twenty miles, and it has a good harbour. N. lat. 25°. W. long. 76° 54'.

**BIMPLEPAKAM, or BIMIPATAN**, a sea-port town of Hindooom, on the western side of the bay of Bengal, in the island of Ciecoro, 35 miles S.S.W. of Ciecoro. N. lat. 18° 10'. E. long. 83° 15'.

**BIMOCRATUS**, in Entomology, a species of Scara- na, that inhabits Amborea. It is tesselaceous; flanks of the anterior legs large, and bearded; and it is an inhabitant of both the West and East Indies. BINA, in Geography, a town of Italy, in the Cremonese, 10 miles N.E. from Cremona.

**BINACLE**, in Sea-Language. See Bittacle.

**BINAGARA**, in Ancient Geography, a town of India, on this side the Danube. Prolemi.

**BINARD ISLAND, in Geography**, a long and narrow island on the north coast of France, to the east of Roteneuf point, having entrances at both the east and west ends, and within it a found or bay. It lies to the east of St. Malo, towards Cancale.

**BINAROS, or Vinaros, a town of Spain**, in Valencia, on the confines of Catalonia, near the coast of the Mediterranean, at the mouth of a river, which forms a small harbour, with anchorage at about a cannon-shot from the town, in 6 to 9 fathoms. It is surrounded with walls, and defended by four canons; 5 miles north of Pennecola, and 20 south of Tortosa.

**BINARY NUMBER**, which is composed of two units.

**Binary Arithmetic**, a method of computation first proposed by M. Leibnitz; whereof, in lieu of the ten figures in the common arithmetic, and the progression from 10 to 10, he has only two figures, and uses the simple progression from two to two.

Jof. Pelican, of Prague, has more largely explained the principles and practice of the binary arithmetic, in a book entitled, "Arithmeticae perfectionis, qui tria numerum secut. 1712." All his characters used in this arithmetic are 0 and 1; and the cipher, here, multiplies every thing by 2, as it does in the common arithmetic by 10. Thus, 1 is one; 10, two; 11, three; 100, four; 101, five; 110, six; 111, seven; 1000, eight; 1001, nine; 1010, ten; &c. being founded on the same principles with the common arithmetic. Hence immediately appears the reason of the celebrated property of the duplicate geometrical proportion in whole numbers; viz. that one number of each degree being had, we may thence compose all the other whole numbers above the double of the highest degree. It being here, v. gr. as if one should lay 111 is the sum of 11, 2, and 1, which property may serve allies to weigh all kinds of matter with a little weight; and may be used in coins, to give several values with small pieces. This method of expressing numbers once established, all the operations will be easy; in multiplication particularly, there will be no need for a table, or getting anything by heart. The author, however, does not recommend this method for common use, because of the great number of figures required to express a number; adding, that if the common progression were from 12 to 12, or from 16 to 16, it would be still more expedient: but its use is in discovering the properties of numbers, in constructing tables, &c. What makes the binary arithmetic the more remarkable is, that it appears to have been the same with that used 4000 years ago among the Chinese, and left an enigma for Poli, the founder of their empire, as well as of their sciences. M. Logny has proposed a new system of logarithms, on the plan of the binary arithmetic; which he finds shorter, more easy, and natural than the common ones.

**Binary**, a time in Music, consisting of two crotchets, or two minims in a bar.

**BINASCO**, in Geography, a town of Italy, in the Milanese, 10 miles south of Milan.

**BINATED LEAF, in Botany. See Leaf.**

**BINCHE**, in Geography, a town of the Netherlands, in the county of Hainaut, situated in a fertile country on the river Haie; and, according to the French distribution, a place and canton in the district of Charleroi and department of Jemappe. The town contains 3798 perfons, and the population of the canton is estimated at 13,968. The extent of the territory comprehends 153 kilometres and 16 communes. Bimche was burnt by Henry II. of France in 1554, and soon after rebuilt. In 1578, it was taken by John duke of Austria, and retaken in the same year by the duke of Alençon. The Spaniards regained possession of it, and ceded it to France at the peace of Aix-la-Chapelle, but the peace of Nimeguen restored it, together with its jurisdiction, including 51 towns and villages, to Spain. It is distant 8 miles E. S. E. from Mons.

**BIND**, in Commerce, contains 10 strikes of eels, each strike including 25.

**BIND-Weed, in Botany. See Convolvulus.**

**BIND-Weed, black. See Tamus.**

**BIND-Weed, rough. See Stilax.**

**Bind-With. See Clematis.**

**BINDEN, in Geography**, a town of Swisserland in the Valais, near the river Binna. N. lat. 46° 13'. E. long. 7° 58'.

**BINDER-Ooze, the weakest kind of tan-oze. See Tanning.**

**BINDING JOISTS, in Architecture. See Joists.**

**Binding, in the Art of Defence**, a method of securing or crowning the adversary's sword, with a prefecture, accompanied with a spring from the wrist. See Beating. Unlefs a man, by some kind of crofs, secure, as it were, or render his adversary's sword incapable to find him during the time of his performing a lefion upon him, it is impossible for him to be certain, but that he may receive from his adversary, either a fortuitous contretemps, or an exchanged thrust,
BIN

thrust, before the recovery of his body, or going off after a
thrust.

The great objection made by some people, particularly
those time-catching, against the frequent use of binding, is,
that when a man, in performing it, cleaves too much to his
adversary's fault, he is liable to his adversary's slipping
of
him, and consequently of receiving either a plain thrust, or
one from a feint.

Binding is a term in Falconry, which implies tiring, or
when a hawk seizes.

Example.

BINETTA, in Geography, a town of Italy, in the king-
dom of Naples, and country of Bari, 4 miles W.S.W. of
Bidetto.

BINGAZI. See Bengazi.

BINGE, a town of France, in the department of the
Cote d'Or, and chief place of a canton in the district of
Dijon, 10 miles east of Dijon.

BINGEN, a town of Germany, in the circle of the Lower
Rhine, and electorate of Mayence, and by the
French arrangement, the principal place of a canton in the
district of Mayence, and department of Mont-Tonnerre.
The town is said to contain 2663 inhabitants, and the canton
5638. It includes 10 communes. The town is noted for
the conflux of the Nahe and Rhine. The stone bridge over
the former is a noble structure, and the adjoining country is
delightful. Bingen is a very ancient town, and was once
imperial. The fortifications were destroyed by Lewis XIV.
in 1689. A great part of the corn, which is carried into
the Rhine-gan, the neighbouring palatinate, comes through
this place, which, on the other hand, supplies the palatinate
with drugs, and various foreign commodities. Besides this
traffic, it has in its vicinity very fruitful vineyards, which
produce excellent wine. Near this town the Rhine is com-
prefixed into a narrow channel, between two rocks; about a
mile and a half below it is a kind of whirlpool, called the
"Bingen-loch," the passage of which is dangerous. At a
small distance is also an island on the Rhine, denominated
"Maulbush," or tower of rats; from a tradition, that an
archbishop of Mentz was there devoured by these animals,
in the tenth century, as a judgment executed on him for his
cruelty to the poor, whom he compared to rats eating up the
abundance of the rich. Bingen is 19 miles W. of Mentz,
30 S. of Coblienz, and 54 E. of Treves. N. lat 49° 54'.
E. long 7° 33'.

BINGENHEIM, a town of Germany, in the circle of
the Upper Rhine, and principality of Hesse, 16 miles N.E.
from Frankfort on the Main.

BINGHAM, Joseph, in Biography, a learned English
divine, was born at Wakefield, in Yorkshire, in 1668. Having
acquired the rudiments of classical learning at a school
in his native town, he was admitted, in 1682, into University-
college at Oxford, and in 1687 became fellow. Having
taken.

BINNING Book. See Book-Binding.

BINNING-Notes, in Music, imply two or more sounds on
the same line or space, that are linked together by a semi-
circle; and which, though written or printed twice, are not
to be separated, but sustained like a single sound.
The first of these tied or binding-notes, as in preparing
discords, is usually struck on the unaccented part of a bar,
and continued on the accented part. See Ligature, and
Syncopation.

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taken his master's degree in 1699, he was soon after presented by Dr. Radcliffe, the celebrated physician, to the rectory of Headbourne-Worthy, near Winchester; a preferment which, though not exceeding in value £100 a year, afforded him access to the valuable library at Winchester, and enabled him to prosecute the arduous undertaking, to which, in this retirement, he devoted much of his time and labour. Accordingly, the first volume of his learned work, entitled "Origines Ecclesiasticae, or the Antiquities of the Christian Church," appeared in 1708. It was completed in ten volumes, 8vo, and contains a judicious and candid, as well as ample account of the Christian clergy and churches from the earliest times. Besides this work, which was the result of much reading and indefatigable application, he published, in 1706, "The French Church's Appeal for the Church of England; or the objections of the Dissenters against the Articles, Homilies, Liturgy, and Canons of the English Church, considered and answered upon the principles of the Reformed Church of France," 8vo. His avowed design in this work was to reason Dissenters "into union upon such principles as are common to all the churches of the reformation." However laudable the design, uniformity of sentiment is not likely to be produced by any reasoning, as long as men are allowed to exercise the right of private judgment, and the only practicable union seems to be that which results from mutual forbearance and benevolence. Mr. Bingham likewise published "A Scholastic History of Lay-Baptism," in two parts, 1712, 8vo.; and "A Discourse concerning the Mercy of God to Penitent Sinners." All his works were collected and published in 2 vols. fol. Lond., 1725. Notwithstanding the acknowledged learning and meritorious services of Mr. Bingham, he had no other preferment besides that above-mentioned, till the year 1713, when he was collated to the rectory of Havant near Portsmouth. He died in 1723, and was buried in the church-yard of Headbourne-Worthy, without any monument, of which he declared his dislike in his last will.

Biog. Brit.

Bingham, in Geography, a town of Nottinghamshire, in England, stands nearly in the centre of the vale of Belvoir. It consists principally of two streets, running nearly parallel to each other, with some smaller streets branching from them. Near the centre of the town is a spacious market-place, where a weekly market is held every Thursday; it has also three annual fairs, and a large statute fair yearly for hiring of servants. Bingham is flated by Thoroton to be much reduced since the reformation, as, previously to that event, it contained three chapels, exclusive of the parish church. The latter was collegiate, and is still a large handsome structure, with a tower and spire, side aisles and chancel. It contains numerous monuments, among which is a plain one inscribed to the memory of Robert White, a native of this place, where he died, in 1773, at the advanced age of eighty. He was author of an annual publication, entitled "The Ecclesiastical Atlas, or New Ephemeris." The rectory of Bingham is esteemed one of the most valuable in the county of Nottingham, and is in the gift of lord Chetfield, who is lord of the manor. This town is 124 miles north from London. It contains 220 houses, and 1082 inhabitants.

At Allithorn, about two miles east from Bingham, archbishop Cranmer was born. About two miles north from Bingham is East-Bridgeford, where are the remains of an entrenchment, and some coins, urns, &c. have been found. Horley places the Roman station, Margidunum, "near East-Bridgeford," from its situation near the ford, and from the agreement of distances, between this and the other stations named in the Itinerary, Thoroton's History of Nottinghamshire.

BINGUM, in Ancient Geography, a town of Gaul, in Germania Prima, west of Moguntiacum; now Bingen, which see.

BINGLESTEIN, in Geography, a town of Germany, in the circle of Welfphalia, and bishopric of Paderborn, 3 miles south of Buren.

BINGO, a small country of Japan, in the island of Ni-pon, situate in N. lat. about 34° 30'. E. long. 134°.

BINGUM, a town of Germany, in the circle of Welfphalia, and county of Earl Friedland, one mile north-west of Oit.

BINGUT Cape and Bay, lie about E. by N. from Algiers, on the coast of Africa, in the Mediterranean. The town of Bingut is at the bottom of the bay of its name, about 12 or 13 leagues from Algiers.

BINIESZKY, a town of Lithuania, in the patriciate of Wilna, 44 miles S. E. of Wilna.

BINN, binna, a sort of chest or cupboard, wherein to lock up bread, meat, or other provisions.

The word is also used for a place boarded up to put corn in. The pulse and oatmeal, tied at top, are apt to spoil in casks. Dr. Hales propounds to prevent this by putting them into large bins, with false bottoms of haircloth laid on bars, whereby fresh air may be blown upwards through them, at proper times, with small ventilators.

BINNA, in Ancient Geography, a town of Assyria, according to Prolemy.

BINNINGER, John Nicholas, in Biography, born at Montbellow, in 1628, studied medicine at Padua, and then went to Bafle, where he was admitted to the degree of doctor in that art in 1652. Returning to his own country, he soon acquired so much fame for his skill in his profession, that he was appointed professor of medicine, and physician to the family of the duke, his sovereign. He left "Observationum et Curationum medicinalem, centuriae quinque," 8vo. 1673. Month, containing some curious and valuable observations. Haller, Bib. Med. Elov, Dict. Hill.

BINNIGUET, in Geography, a small island near the west coast of France, about a league south-west of Le Conquet, and ¾ west of St. Matthew's point. N. lat. 48° 29'. E. long. 1° 5'.

BINN-Na-BAIRD, and BINN-na-MUIKE-DUNDE, are the names of two lofty mountains, in the parish of Crathy, Aberdeenshire, in Scotland. These eminences are conically covered with snow, and extending in the same ridge with the Cairngorm mountain, contain the same species of topaz, which bears the name of Cairngorm flones. Emeralds have been sometimes discovered here; also a species of brown fissional stone, which bears a very fine polish.

BINOCLE, or Binocular Telescope, from binus, double, and oculus, eye, in Optics, that to which both the eyes may be applied, and consequently the same object be observed at the same time by both. It consists of two tubes, with two sets of glasses of the same power, and adjusted to the same axis; and some have pretended that it represents objects much larger and clearer than a single or monocular glass. But this is perhaps only an illusion, occasioned by the stronger impression, which two equal images alike illuminated make upon the eyes. This method of construction was invented by father Rheita, and brought into use by father Cherubin of Orleans. There are also microscopes of the same kind, but very seldom used.

BINODIS, in Entomology, a species of Formica, described by Fabricius as a native of Egypt. It is black; head
BINOMIAL.

Head large and rufous; with two tubercles on the petiole.

BINOMIAL, or BINOMIAL, from his, twice, and numer, name, in Algebra, a quantity consisting of two terms or members, connected by the sign $+$ or $-$ minus.

Thus $a + b$ and $a - b$ are binomials, consisting of the sum or difference of those quantities; though the latter is often called residual, and by Euclid, apotome.

The terms binomial and residual are said to have been first introduced by Robert Recorde. See ALGEBRA.

The powers of a binomial are found by a continual multiplication of it by itself, as often as an unit is contained in the index of the power required. Thrice of a binomial, $a - b$, are obtained in the same manner, only with this difference in the result, that the terms in which the exponent of $b$ is an odd number, will be negative.

If a root have three parts, as $a + b + c$, it is called a trinomial; if more, a multinomial.

BINOMIAL, impossible, or imaginary, in Algebra, is used for a binomial, one of the terms of which is an impossible or imaginary quantity; as $a + \sqrt{-1} b$ is an impossible binomial.

Dr. Markelyne, the astronomer royal, has given (in his Introduction to “Taylor’s Tables of Logarithms,” p. 56,) the following method of finding any power of an impossible binomial, by another similar binomial. The logarithms of $a$ and $b$ being given, it is required to find the power of the impossible binomial $a + \sqrt{-1} b$ whose index is $n$, that is to find $(a + \sqrt{-1} b)^n$ by another impossible binomial; and hence the value of $(a + \sqrt{-1} b)^n + (a - \sqrt{-1} b)^n$, which is always positive, whether $a$ or $b$ be the greater of the two.

Solution. Put $b - a = \tan z$.

Then

$$(a + \sqrt{-1} b)^n = (a + b)^n \times (\cos \frac{m}{n} z + i \sin \frac{m}{n} z).$$

Hence

$$(a + \sqrt{-1} b)^n + (a - \sqrt{-1} b)^n = (a^2 + b^2)^n \times 2 \cos \frac{m}{n} z,$$

or $2 \cos \frac{m}{n} z$, where the first or second of these two last expressions is to be used, according as $z$ is an extreme or mean arc; or rather, because $\frac{m}{n}$ is not only the tangent of $z$ but also of $z + 360^\circ$, $z + 720^\circ$, &c., therefore the factor in the answer will have several values, viz.

$$2 \cos \frac{m}{n} z; 2 \cos \frac{m}{n} (z + 360^\circ); 2 \cos \frac{m}{n} (z + 720^\circ);$$

&c.; the number of which, if $m$ and $n$ be whole numbers, and the fraction $\frac{m}{n}$ in its least terms, will be equal to the denominator $n$; otherwise infinite.

By Logarithms. Put $\log (a + b) = \log \tan z$.

Then

$$\log (a + \sqrt{-1} b)^n \times (\log (a + b) + n \log (\cos \frac{m}{n} z + i \sin \frac{m}{n} z).$$

and

$$\times (1 + \log (a + b) + n \log (\cos \frac{m}{n} z - \log \tan z) + 1 + \log \cos \frac{m}{n} z - 10 = \frac{m}{n} z + 10 \cos \frac{m}{n} z,$$

where the first or second expression is to be used, according as $z$ is an extreme or mean arc. Moreover, by taking successively, $1 \log \frac{m}{n} z$; $1 \log \frac{m}{n} (z + 360^\circ)$; $1 \log \frac{m}{n} (z + 720^\circ)$, &c., there will arise several distinct answers to the question, agreeably to the remark above.

BINOMIAL SURD, is used for a binomial, the terms of which are surds; as $a + \sqrt{b}$ or $a - \sqrt{b}$, if $m$ and $n$ be fractions. The term binomial surd is also applied to any quantity having a rational part and a surd part, as $25 + \sqrt{68}$. Euclid enumerates fix kinds of binomial surds or surds in the ioth book of his “Elements,” which are exactly similar to the six residuals or apotomes, of which he has also treated in the same place. See APOTOME.

Thee apotomes become binomials by merely changing the sign of the last term from minus to plus, and they are as follows: 1st. $\pm \sqrt{3} \pm 5$; 2d. $\sqrt{18} + 4$; 3d. $\sqrt{24} + \sqrt{18}$; 4th. $4 + \sqrt{3} 5$; 5th. $\sqrt{2} + 6$; 6th. $\sqrt{6} + 2$.

For the extraction of roots of binomial surds, see Newton’s Arithmetica Universalis; St. Graevrande’s Commentary, and Mac Laurin’s Algebra, p. 114–120. See SUND.

BINOMIAL CURVE, is used for a curve, the ordinate of which is expressed by a binomial. Thus, if the ordinate of a curve be of this form $z = \pm \sqrt{\frac{x}{y} + \frac{y}{x}}$, the curve is called a binomial curve. Stirlig Method. Diff. p. 58.

BINOMIAL Theorem, is a general algebraical expression, or formula, by which any power or root of a quantity, consisting of two terms, is expanded into a series.

It is also frequently called the Newtonian theorem, or Newton’s binomial theorem, on account of his being commonly considered as the inventor of it, as he undoubtedly was, at least in the case of fractional indices, which includes all the other particular cases of powers, divisors, &c.

This celebrated theorem, as proposed in its most general form, may be exhibited in a manner nearly similar to that of Newton, as follows:

$$a + x = a \times \left[1 + \frac{x}{a} \left(\frac{x}{a} - \frac{a}{x}\right) + \frac{x}{a} \left(\frac{x}{a} - \frac{a}{x}\right)^3 + \frac{x}{a} \left(\frac{x}{a} - \frac{a}{x}\right)^5 + \frac{x}{a} \left(\frac{x}{a} - \frac{a}{x}\right)^7 + \ldots \right].$$

Where $a, x$ are the two terms of the binomial, $\frac{m}{n}$ the index, and $A, B, C, D, &c.$ each preceding term, including their signs $+$ or $-$, the terms of the series being all positive when $x$ is positive, and alternately positive and negative when $x$ is negative, independently however of the effect of the coefficients made up of $m$ and $n$, which may be any numbers whatever, positive or negative.

A few easy cases, in the extraction of roots, will be sufficient to shew the application of the theorem in all similar cases. For this purpose, let it be required to find the square root of $a + b$, or $a + b\frac{1}{2}$, and the cube root of $a - b$, or $a - b\frac{1}{3}$; in the first of which $m = 1$ and in the second $m = \frac{1}{3}$.

Then

$$a + b\frac{1}{2} = a \left[1 + \frac{1}{2} \left(\frac{b}{a}\right) - \frac{1}{2^2} \left(\frac{b}{a}\right)^2 + \frac{3}{2^4} \left(\frac{b}{a}\right)^3 \right].$$

$$\left(\frac{b}{a}\right)^\frac{1}{3} = \frac{3}{2} \cdot \frac{3}{2^4} \cdot \frac{3}{2^4} \left(\frac{b}{a}\right)^\frac{1}{3},$$

&c.
And \( (a + b)^3 \) = \( a^3 + \frac{1}{3} \left( \frac{b}{a} \right) - \frac{1}{3^3} \left( \frac{b}{a} \right)^3 \) \( \frac{5}{3^3} \), &c.

And, in the same manner, if 1, divided by the cube root of the square of \( a + b \), be converted into a series, we shall have

\[
\frac{1}{a + b} = \frac{1}{a^3} \left[ 1 + \frac{2}{3} \left( \frac{b}{a} \right) + \frac{2^2 5}{3^3} \left( \frac{b}{a} \right)^3 \right] + \frac{2^5 7}{3^3} \left( \frac{b}{a} \right)^4, &c.
\]

But these series are only commodious in calculation, in proportion to their degree of convergency. For if \( N \) be made to represent the rank which any term holds in the series arising from the binomial \( a - b \) being refered to the nth power, then that term will be to the following one as \( \frac{m}{m-N+1} \), from which it is evident, that for the terms of the series to go on decreasing, \( b \times m - N + 1 \), taken positively, must be always less than \( aN \).

With respect to the history of this theorem, the prevailing opinion, till within these few years, has been, that it was not only invented by Newton, but first given by him in that state of perfection, in which the terms of the series, for any assigned power whatever, can be found, independently of the terms of the preceding powers; viz. the second term from the first, the third from the second, the fourth from the third, and so on, by a general rule. But it has since been found, that in the cafe of integral powers, the theorem had been described by Briggs, in his "Trigonometria Britannica," long before Newton was born; and that, by the general law of the terms, independently of those of the preceding powers. For, as far as regards the generation of the coefficients of the terms of one power from those of the former ones, succedively one after another, it was remarked by Vieta, Oughtred, and many others; and was not unknown to much more early writers on arithmetic and algebra, as will be manifest by a digest inspection of their works, as well as the gradual advance the property made both in extent and perfection, under the hands of the latter authors, most of whom added something more towards its perfection.

The knowledge, indeed, of this property of the coefficients of the terms of the integral powers of a binomial, is, at least, as old as the practice of the extraction of roots, of which it is both the foundation and principle. And as the writers on arithmetic became acquainted with the nature of the coefficients in the higher powers, they extended the extraction of roots accordingly, still making use of this property. At first, they appear to have been only acquainted with the nature of the square, the coefficients of which are the three terms, 1, 2, 1; and, by their means, extracted the square roots of numbers, but went no farther. The nature of the cube next presented itself, which consists of the coefficients, 1, 3, 3, 1; and, by means of these, they extracted the cube roots of numbers, in the same way as is practised at present. And this was the extent of their extractions, in the time of Lucas de Burgo, who, from 1470 to 1500, wrote several tracts on arithmetic, containing the substance of what was then known of this science.

It was not long, however, before the nature of the coefficients of all the higher powers became known, and tables formed for constructing them indefinitely. For, in the year 1543, Michael Stifelius, a German, published an excellent work on arithmetic and algebra, under the title of "Arithmetica Integra," in which he gives the following table, for constructing both figurate numbers and the coefficients of the terms of the various powers of a binomial, which, since his time, has been often used for these and other purposes; and more than a century after, was, by Pascal, otherwise called the arithmetical triangle, and of which he has commonly been called the inventor, though he only mentioned some of its additional properties.

\[
\begin{array}{c|cccccccc}
& 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\hline
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\
2 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
3 & 3 & 6 & 9 & 12 & 15 & 18 & 21 & 24 \\
4 & 4 & 8 & 12 & 16 & 20 & 24 & 28 & 32 \\
5 & 5 & 10 & 15 & 20 & 25 & 30 & 35 & 40 \\
6 & 6 & 12 & 18 & 24 & 30 & 36 & 42 & 48 \\
7 & 7 & 14 & 21 & 28 & 35 & 42 & 49 & 56 \\
8 & 8 & 16 & 24 & 32 & 40 & 48 & 56 & 64 \\
\end{array}
\]

In this table Stifelius observes, that the horizontal lines furnish the coefficients of the terms of the correspondent powers of a binomial; and teaches how to use them in extracting the roots of all powers whatever. The same table was also used, for a similar purpose, by Cardan, Stevin, and other writers on arithmetic; and it is highly probable that it was known much earlier than the time of Stifelius, at least as far as regards the proportions of figurate numbers, which had been amply treated of by Nicomachus, who lived, according to some, before Euclid, but not till long after him, according to others; and whose work on arithmetic was published at Paris in 1538, and is supposed to have been chiefly copied in the treatise on the same subject by Boethius.

The contemplation of this table has also, probably, been attended with the invention and extension of some of our most curious discoveries in mathematics, both with respect to the powers of a binomial, the consequent extraction of roots, the doctrine of angular sections by Vieta, and the differential method of Briggs, and others. For a few of the powers or sections being once known, the table would be of the greatest use in discovering and constructing the rest; and accordingly it appears to have been used, on many occasioned of this kind, by Stifelius, Cardan, Stevin, Vieta, Briggs, Oughtred, Mercator, Pascal, &c.

But although the nature and construction of this table were thus early known, and employed in raising powers and extracting roots, it was yet only by raising the numbers from one another, by continual additions, and taking them from the table for use when wanted; till Briggs first pointed out the way of raising any horizontal line in the table, by itself, without any of the preceding lines; and thus teaching to raise the term of any integral powers of a binomial independently of any other powers; which was, in fact, giving the substance of the binomial theorem in words, but wanting the notation in symbols.

It may, however, be fairly questioned, whether Briggs knew how, even in the case of an integral exponent, to exhibit the law of the formation of the coefficients, under the form \( \frac{1 \cdot 2 \cdot 3 \cdot \ldots \cdot n}{m^{m-1} (m-2) \ldots (m-n+1)} \); for, though his method of forming the successive coefficients amounts to nearly...
nearly the same thing, yet the advancement in analysis depended on the circumstance of the law which they observe, being expressed by means of a general symbol \((n)\); without which, its extension would never have been made to those cases in which the index is negative or fractional: so that Briggs, even in the case of integral powers, does not appear to be fully entitled to the invention of the binomial theorem, properly so called.

But however this may be, it is universally agreed that no one before Newton had ever thought of extracting roots by means of infinite series. He was the first who happily discovered, that, by considering roots as powers having fractional exponents, the same binomial series would equally serve for them all, whether the index should be fractional or integral, or the series finite or infinite; and from this extension of the theorem, some of the most important improvements, in the higher departments of mathematics, have arisen; particularly in the construction of logarithms, and the doctrine of series in general, which have since been carried to a great degree of perfection, and now form some of the most curious and interesting branches of analysis.

It may also be farther observed, with respect to the claim of Newton as an original inventor of this highly useful theorem, that he had probably never seen the Arithmetica Logarithmica of Briggs; for it is well known that he was not an extensive reader of mathematical works, depending more on the powers of his own genius than upon any helps of this kind: so that there can be but little doubt of his having made the discovery himself, without receiving any light from what had been done by Briggs; and that he conceived the theorem to be new for all powers in general, as it was for roots and quantities with fractional indices.

But though this appears to be the case with respect to Newton, it is yet surprising that Dr. Wallis, who was a general reader of most mathematical works, and who had actually seen Briggs's Arithmetica Logarithmica, as he mentions it in page 60, chap. xii. of his Algebra, should not have attended enough to this curious treatise, to know that it contained such a new and excellent theorem, as it fully appears he did not; since, in the 85th chapter of the above-mentioned work, he affirms the invention entirely to Newton; and adds, that he himself had thought after such a rule, but without success. It is also no less singular, that John Bernoulli, not half a century since, should first dispute the invention of this theorem with Newton, and afterwards give the discovery of it to Paseal, who was not born till long after it had been taught by Briggs. (See Bernouilli's works, vol. iv. p. 173.)

Dr. Wallis's Algebra was published in the year 1685; and it was here, for the first time after Newton's discovery of it, that the binomial theorem, according to his general manner of expressing it, appeared in print, and was made known to the learned world; though Leibnitz, and probably Dr. Barrow (who was Newton's great friend and patron in his youth), as well as some other mathematicians of that time, had seen it, in a letter addressed to Mr. Oldenburgh, of October 24th 1676, (which was given in the Commercium Epistolicum), long after the said letter was written. But he no where tells us his manner of investigating it; nor is any demonstration of it to be found, even in the case where the index is a whole number, in any part of his works. He says, indeed, in his next letter to Oldenburgh, to be found in the same work, that the occasion of its discovery was as follows:

"Not long (he observes) after I had ventured upon the study of the mathematics, whilst I was perusing the works of the celebrated Dr. Wallis, and considering the series of universal roots, by the interpolation of which we exhibit the area of the circle and hyperbola: for instance, in this series of curves, whole common base or axis is \(x\), and the respective ordinates \(1-x^2/3, 1-x^4/3, 1-x^6/3, 1-x^8/3, \ldots\), &c. I observed that if the areas of the alternate curves, which are \(x, x^2, x^3, \ldots\), could be interpolated, we should, by this means, obtain the areas of the intermediate ones, the first-of which is \(1-x^2/3\) is the area of the circle. In order to this it was evident, that in each of these series the first term was \(x\), and that the second terms \(\frac{2}{3}x^2, \frac{4}{3}x^3, \ldots\), were in arithmetical progression; and consequently the first three terms of the series to be interpolated must be \(x-\frac{1}{3}x^3, x-\frac{2}{3}x^3, x-\frac{3}{3}x^3\), &c.

"Now, for the interpolation of the rest, I considered that the denominators \(1, 3, 5, 7, \ldots\), were, in all of them, in arithmetical progression; and consequently the whole difficulty confined in discovering the numerical coefficients: but there, in the alternate areas which are given, I observed were the same with the figures of which the several ascending powers of the number \(1\) composed, viz. \(11, 11, 11, 11, 11, \ldots\), &c. that is, the first, \(1\); the second, \(1, 1\); the third, \(1, 2, 1\); the fourth, \(1, 3, 3, 1\); the fifth, \(1, 4, 6, 4, 1\), &c.

"I applied myself, therefore, to discover a method by which the first two figures of these series might be derived from the rest; and I found, that if for the second figure, or numeral term, I put \(m\), the rest of the terms would be produced by the continual multiplication of the terms of this series, 

\[
\frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} \times \frac{m-4}{5}, \ldots
\]

"For instance, if the second term be put for \(4\), there will arise \(4 \times \frac{m-1}{2} = 6\), that is \(6\), which is the third term; the fourth term will be \(6 \times \frac{m-2}{3} = 10\), that is \(4\); the fifth term will be \(4 \times \frac{m-3}{4} = 10\), that is \(4\); and the sixth term will be \(4 \times \frac{m-4}{5}, \ldots\), that is \(0\), which shows the series is here terminated, in this case.

"This being found, I applied it, as a rule, to interpolate the above-mentioned series. And since, in the series which expresses the circle, the second term was found to be \(\frac{1}{3}x\), I therefore put \(m = \frac{1}{3}\); and there was produced the terms \(\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}\), or \(-\frac{1}{4}\); and \(-\frac{1}{8} \times \frac{1}{2} = \frac{1}{16}\); and to obtain the hyperbola. Hence I found that the area of the segment of the circle-fought is \(x = \frac{1}{3}x - \frac{1}{3}\); and \(-\frac{1}{3}\); and \(-\frac{1}{16} \times \frac{1}{2} = \frac{1}{128}\); and to an infiniteness. Hence I found that the area of the segment of the circle-fought is \(x = \frac{1}{3}x - \frac{1}{3}\); and \(-\frac{1}{3}\); and \(-\frac{1}{16} \times \frac{1}{2} = \frac{1}{128}\); and to an infiniteness. Hence I found that the area of the segment of the circle-fought is \(x = \frac{1}{3}x - \frac{1}{3}\); and \(-\frac{1}{3}\); and \(-\frac{1}{16} \times \frac{1}{2} = \frac{1}{128}\); and to an infiniteness.

"In the same manner, the areas to be interpolated of the other curves might be produced; as also the area of the hyperbola,
BINOMIAL.

hyperbola, and the rest of the alternate curves in the series
\[1 + x^2, 1 + x^4, 1 + x^6, \ldots, 1 + x^n, \ldots\]; and in a similar
way might other series be likewise interpolated, and that
even if they should be taken at two more intervals.

"This was the way by which I first opened an entrance
into these speculations, which I should not have re-
membered, but that, in turning over my papers, a few weeks
ago, I, by chance, cast my eyes upon those relating to this
matter.

"After I had proceeded so far, it immediately occurred
to me that the terms \(1 - x^2\), \(1 - x^3\), \(1 - x^4\), \(1 - x^5\), \&c.
that is, \(1 - \sqrt[3]{x}\), \(1 - \sqrt[4]{x}\), \(1 - \sqrt[5]{x}\), \(1 - \sqrt[n]{x}\), \&c.
might be interpolated in the same manner as I had done in
the case of the areas generated by them; and for this, there
required nothing more than to leave out the denominators, \(1,
3, 5, 7, \&c.
\) in the terms that express the areas; then the co-
efficients of the terms to be interpolated \((1 - x^2)\), \(1 - x^3\),
or universally \(1 - x^n\) will be had by the continual multi-
plication of the terms of the series \(m \times \frac{m - 1}{2} \times \frac{m - 2}{3} \times \frac{m - 3}{4} \&c.

"Thus, for example, \(1 - \sqrt[4]{x}\) \(\frac{1}{10} \quad x^6 \&c.
and \(1 - \sqrt[5]{x}\) \(\frac{1}{9} \quad x^7 \&c.

"Thus, I discovered a general method of reducing radial
quantities into infinite series, by the binomial theorem,
which I set in my last letter, before I observed that the
same thing might be obtained by the extraction of roots.

"But after I had discovered this method, the other way
could not long remain unknown; for, in order to prove the
truth of these operations, I multiplied \(1 - \frac{1}{2} x^2 - \frac{1}{3} x^3 - \frac{1}{4} x^4 \&c.
by itself, and found the product to be \(1 - x^2, \&c.
all the terms after these \(ad in\nantum\) vanishing; in like man-
ner \(1 - \frac{2}{3} x^3 - \frac{1}{2} x^4 + \frac{1}{6} x^5 \&c.
being twice multiplied
into itself, produced \(1 - x^3\). And as this was a certain proof
of the truth of these conclusions, I was thereby naturally led
to try the converse of it, viz. whether these series, that
were now known to be the roots of the quantity \(1 - x^n\),
might not be produced by the rule for extraction of roots in
arithmetick; and, upon trial, I found it success to my
wishes.

"This being found, I laid aside the method of interpola-
tion, and assumed these operations, as a more genuine foun-
dation to proceed upon. In the mean time, I was not
ignorant of the way of reduction by division, which was so
much easier."

From this account, as given by Newton himself, it ap-
pears that his discovery of the law for the areas, with ir-
ational ordinates, preceded that of the law for the expan-
sion of those ordinates; although the latter, as Montucla ob-
erves, might have been expected to precede the former, if
inventive genius always pursued the most easy method. But,
in tracing the progress of the human mind, it may generally
be observed, that a collection of discoveries in any branch
of science, is seldom found to be a series of regular deduc-
tions; but, on the contrary, we often discern therein many
anticipations, and sometimes even a reversion of the natural
and logical order of ideas.

It is worth while here to remark, that Newton had made
these discoveries, as well as many others, several years be-
fore Mercator had published his "Logarithmotechnia," which
contains a particular case of this theory; but, from
an excess of modesty and indifference for these fruits of his
genius, he delayed making them known to the world; and,
even after the above-mentioned work had appeared, which
would have operated as a powerful motive with most other
men, in exciting them to share in the glory of these brilliant
inventions, he was still more confirmed in the resolution he
had taken, of not making himself known as an author till
he was of a more mature age. He conceived, that Mercator
having discovered, as it was said, the series for the hyper-
bola, would not be long before he extended his method to
the circle, and other curves; or, if this should not be done
by him, the invention would be readily perceived by others.
In short, it appears rather singular, that as Mercator had
converted the expression \(\frac{1}{1 + x}\) into an infinite series, by the
ordinary method of division, he should not have tried to dis-
cover the series for \(\sqrt[3]{1 + x}\) by the known method of ex-
tracting the square root; but this, though extremely ob-
vious, escaped his notice; and many circumstances, of a
similar kind, are to be found in the history of the sciences.

Newton, as has been already observed, left no demonstra-
tion of this theorem; but appears to have formed it merely
from an induction of particular cases; and though no doubt
can be entertained of its truth, having been found to succeed
in all the instances in which it has been applied; yet, agree-
ably to the rigour that ought to be observed in the estab-
lishment of every mathematical theory, and especially in a
fundamental theorem of such general use and application, it is
necessary that as regular and strict a proof should be given
of it as the nature of the subject, and the state of analysis,
can afford.

One of the first demonstrations of this kind that appears
to have been given, is that of James Bernoulli, which is to
be found, among several other curious things, in a small trea-
tise of his, entitled "Ars Conjectandi," which has been very
improperly omitted in the collection of his works, published
by his nephew, Nicholas Bernoulli. But this is only applied
to the case of integral and affirmative powers, and is near-
ly the same with that which was afterwards given by Mr. John
Stewart, in his commentary on Sir Isaac Newton's quadra-
ture of curves. It is founded on the doctrine of combina-
tions, and the properties of figurate numbers, which are
there shewn to involve in them the generation of these co-
efficients; and in the instance before mentioned, where the
index of the binomial is a whole positive number, it is clearly
and satisfactorily explained.

Since that time, many attempts have been made to demon-
strate the general case, or that where the index of the bi-
omial is either a whole number or a fraction, positive or nega-
tive; but most of these demonstrations having been con-
ducted, either by the method of increments, the multinom-
ial theorem of De Moivre, or by fluxions, are commonly
thought to be unsatisfactorily and imperfect; and it should
seem not without reason; as, independently of other objec-
tions, it appears contrary to the principles of science, as well
as to just reasoning, to employ, in a matter purely algebraical,
notions and doctrines derived from other branches, or from
an analysis which is in some sort transcendental.

For these reasons, several eminent mathematicians have en-
deavoured to investigate this formula on pure analytical prin-
ciples,
B I N O M I A L.

The binomial theorem, in its more natural and obvious way; one of the first of these attempts being that of Landen, in his "Discourse concerning the residual analysis," and the next that of Euler, in the eighth volume of the "New Petersburg Memoirs." But the legitimacy of the former may be objected to, as depending upon vanishing fractions, and other considerations of too difficult and abstract a nature to be regarded as sufficiently convincing; and the latter, though very ingenious, is not less difficult and embarrassing; at least, it is the opinion of Euler, who having himself first given a demonstration of this theorem, in which, like Macaulay, he employed the differential calculus, or method of fluxions, was afterwards led to deduce it from the principles of algebra alone: though he does not appear to have been much more successful than either of the former.

S. Lhuiller of Geneva, perceiving the defects and obscurity of these methods, has made a new demonstration of this formula in one of the preliminary articles of his excellent work, entitled, "Principiorum calculi differentialis et integralis, &c." which is purely elementary; and abating from its length, and a fatiguing detail of particulars, which the nature of the subject does not seem to require, it appears to have accomplished his object; at least as far as the method he adopted would allow; for it must be confessed, that neither this, nor any other investigation that had hitherto appeared, have been attended with the simplicity and frictitens which could be derived.

The reason of this, as Dr. Woodhouse properly observes, in his "Principles of Analytical Calculation," seems to be, that most mathematicians appear to have sought for some high origin of this theorem, distinct from the simple operations of multiplication, division, extracting of roots, &c.; and instead of considering the nature of the operations it was known to comprehend, hoped to supercede them by deductions drawn from abstruse and fine theories: whereas it is clear that whatever imperfections these fundamental operations are attended with, are also attached to the binomial theorem, which, in a certain sense, may be said to be a method of trial and conjecture. For, as this formula is only meant to express, in general terms, the algebraical rules above mentioned, it cannot posses a greater degree of certainty than is possessed by the simple operations themselves.

To avoid entering into a too prolix investigation of the well-known and simple elements upon which the general formula depends, it is sufficient to observe that it is clearly manifest from some of the first and most common rules of algebra, that whatever is the operation which the index (m) in \(a + xn\) directs be performed upon the binomial \(a + x\), whether of continued multiplication, or elevation, or division, or of extraction of roots, the terms of the resulting series will necessarily arise by regular and whole positive powers of \(x\); and that the two first terms of this series will always be \(a^m + ma^{m-1}x\); so that the entire expansion of it may be represented under the form \(a^m + ma^{m-1}x + px^n + qx^{n+1}, \&c.\)

For, omitting the practical part of the process, which is taught by the above mentioned rules, it will constantly be found, by performing the operations at length in the usual way, that

\[
\frac{1}{a + xn} = a^{-1} + 2a^{-2}x + 3a^{-3}x^2 + 4a^{-4}x^3 + \cdots
\]

\[
\frac{1}{a + x} = a^{-1} + a^{-2}x + a^{-3}x^2 + a^{-4}x^3 + \cdots
\]

\[
\frac{1}{a + x^n} = a^{-1} + 2a^{-2}x + 3a^{-3}x^2 + 4a^{-4}x^3 + \cdots
\]

\[
\frac{1}{a + x^m} = a^{-1} + 2a^{-2}x + 3a^{-3}x^2 + 4a^{-4}x^3 + \cdots
\]

In all the inferences here given, it is apparent, that the first term of the series, in each of which is the same as the power or root of the first term of the binomial quantity to which it belongs; and that the coefficient of \(x\) in the second term is always had by multiplying the index of the first term into that term, having its index diminished by 1; and as these cases are of the same kind with those that are designed to be expressed, in universal terms, by the general formula, it is in vain, as far as regards the two first terms of the expansion, to look for any other origin of them, than what may be derived from theorems and similar operations.

Aiming therefore, \(a + xn = a^m + ma^{m-1}x + px^n + qx^{n+1}, \&c.\) it only remains to determine the value of the coefficients \(p, q, r, \&c.\) and to shew the law of their dependence on the index (m) of the operation by which they are produced.

For this purpose, let \(m\) denote any number whatever, integral or fractional, positive or negative; and let the coefficients of the 3d, 4th, 5th, \&c. terms of the nth power of any binomial be denoted by \(p, q, r, \&c.\)

Then for \(x\), in the above form, put \(y + wz\), and there will arise

\[
a + y + wz = a + y + wz = a + y + wz,
\]

which are all identical expressions; and when expanded according to the proper forms, must be equal to each other.

But \(a + y + wz = a + ma^{m-1}y + pz^m + 2y^2z, \&c.\) (omitting to let down the higher powers of \(z\), which are not wanted in the demonstration) =

\[
\frac{a + y + wz}{a + y + wz} = a + y + wz = a + y + wz,
\]

\[
\frac{a + y + wz}{a + y + wz} = a + y + wz = a + y + wz.
\]

Hence the two series being identical, \(a + ma^{m-1}y + pz^m + 2y^2z, \&c.\) = \(a + ma^{m-1}y + pz^m + 2y^2z, \&c.\) = \(a + ma^{m-1}y + pz^m + 2y^2z, \&c.\) = \(a + ma^{m-1}y + pz^m + 2y^2z, \&c.\)

And hence the coefficients of the terms involving the fame powers of the arbitrary quantities \(y\) and \(z\) must be the same.

We shall have \(2p = m + 1, \&c.\) or \(p = \frac{m + 1}{2}, \&c.\)

And hence \(p' = \frac{m - 1 - m - 1}{2} = a^{m - 1}\). Also \(3q = mp', \&c.\) when \(m, m - 1, \&c.\)
The mouth of this river is in S. lat. 36° 45', W. long. 73° 28'; and its entrance known by two remarkable hills, called the Teats of Biobio, which are situated at the north, betwixt it and the bay of Conception, and serve to both as land-marks for navigators.

The river is about one mile across at the mouth, has good depth of water in the middle, and the tide rises about seven feet and a half at the full and change of the moon.

BIOCOLYTAE, in the Byzantine Empire, an order of officers appointed to prevent the violence frequently committed by the soldiers. The word is compounded of βιος, ζωή, ζωή, ζωή, and μορφός, a hinder; and should rather be written biocolyte.

The biocolyte appear to have been much the same with the French archers of the Marshalle. They were suppressed by the emperor Julian.

BIOCULATA, in Entomology, a species of Ephemeræ, described by Geoffroy, Linnaeus, &c. The wings are white, reticulated &c. on the head two yellow tubercles, Fabr. Inhabits wet places in Europe. The tail of this kind is furnished with two bristles as long as the body.

BIOCULATUS, in Natural History, a species of Hirudo, of an elongated form and cinerous colour, with two eyes. Gmel. Müll. This is hirudo flagellis of Linnaeus. En. Succ. &c. Found in wet hollows and rivulets very common. Length of this creature is nine lines. The female bears about forty eggs at a time, which are surrounded by a pellicle circle; at first these are cinerous, afterwards brown; and the young, after exclusion, adhere by their tails to the belly of the female. Gmel.

BIOCULATUS, in Entomology, a species of Cryptocéphalus (Crioceris), found at the Cape of Good Hope. It is teltaceous; thorax immaculate; on the wing-cazes two occular white spots. Fabricius.

BIOCZ, in Geography, a township of Poland, in the paltinate of Cracow, north of the Carpathian mountains. N. lat. 49° 48'. E. long. 21° 40'.

BIOEA, in Ancient Geography, a sea-port in the southern part of the island of Sardina, according to Ptolomy.

BIOGLOIO, in Geography, a town of Italy, in the lordship of Vercelli, 23 miles N.W. of Vercelli.

BIOGRAPHER, formed from the Greek βιος, ζωή, and κοινεῖος, I describe, an author who writes a history, or life, of one or more persons. Such were Plutarch, Corn. Nepos, &c.

BIOGRAPHY, the art of describing or writing lives, is a branch or species of history more entertaining, as well as more useful in many respects, than general history, as it represents great men more distinctly, unembarrassed with a crowd of other actors, and descanting into the detail of their actions and character, their virtues and failings, gives more light into human nature, and leads to a more intimate acquaintance with particular persons than general history allows. A writer of lives may defend, with propriety, to minute circumstances and familiar incidents. From him it is expected to give the private as well as the public life of those whole actions he records; and it is from private life, from familiar, domestic, and seemingly trivial occurrences, that we often derive the most accurate knowledge of the real character. The subjects of biography are not only the lives of public or private persons, who have been eminent and beneficial to the world in their respective stations, but those also of persons notorious for their vice and profligacy; which may serve, when justly characterized, as warnings to others, by exhibiting the fatal consequences which, sooner or later, generally follow licentious practices. As for those, who exposed their lives, or otherwise employed their time and labours for the service
service of their fellow creatures, it seems but just debt, that their memories should be perpetuated after them, and that posterity should be made acquainted with their benefactors. This was no small incentive to virtue in the pagan world; and no one can be ignorant, on due reflection, how natural this passion is to mankind in general. For this reason, as Dr. Ward presumes (Orat. vol. ii. p. 525.), Virgil has placed not only his heroes, but also the ventures of useful arts and sciences, and other perils of distinguished merit, in the Elysian fields, where he describes them (Ann. l. vi. v. 661.):

"Here patriots live, who, for their country's good,
In fighting fields were prodigies of blood;
Priests of unblemished lives here make shade,
And poets worthy their inspiring god:
And searching wits of more mechanic parts,
Who grace'd their age with new-invented arts;
Those who to worth their bounty did extend,
And those who knew that bounty to command:
The heads of these with holy follets bound,
And all their temples were with gruninds crown'd."

In the lives of public persons, their public characters are principally, but not solely, to be regarded. The world is inquisitive to know the conduct of princes and other great men, as well in private as in public; and both may be of service, considering the influence of their example. But to be odd inquisitive in searching into the weaknesses and failings of the greatest or best men, is, to say no more of it, a needless curiosity.

In this species of writing Plutarch has no inconsiderable merit; and to him we are indebted for much of the knowledge which we possess concerning several of the most eminent personages of antiquity. His matter, however, is better than his manner; as he cannot lay claim to any peculiar beauty or elegance. His judgment too, and his accuracy, have sometimes been taxed; but whatever may be his defects of this kind, his lives of eminent men will always be considered as a valuable treasure of instruction. He is remarkable for being one of the most humane writers of all antiquity; let's dazzled than many of them are, with the exploits of valour and ambition; and fond of displaying his great men to us, in the more gentle lights of retirement and private life.

It has been a matter of dispute among the learned, whether any one ought to write his own history. No one, it may be said, can be so much master of the subject as the person himself; and besides, there are many infallacies, both ancient and modern, to justify that practice. But, on the other hand, it must be owned, that it is attended with many inconveniences, some of which are mentioned by Cicero: "If," says he, (Ad. fam. l. vii. ep. 12.) "there is any thing commendable, perils are obliged to speak of themselves with greater modesty, and to omit what is blamable in others. Besides, what is said is not so soon credited, and has less authority; and after all, many will not hesitate in confuting it." To the same purpose it is well observed by Pliny (l. viii. ep. 1): "Those who proclaim their own virtues, are thought not so much to proclaim them, because they did them, as to have done them, that they might proclaim them. Hence, what would appear great, if told by another, is left, when related by the party himself. For when men cannot deny the fact, they reflect upon the vanity of its author. Wherefore, if you do things not worth mentioning, the actions themselves are blamed; and if the things you do are commendable, you are blamed for mentioning them." The justice of these reflections will be allowed; and yet, considering how natural it is for men to love themselves, and to be inclined in their own favour, it seems to be a very difficult task for any one to write an impartial history of his own actions. There is scarcely any treatise of this kind that is more celebrated than Cæsar's "Commentaries," and yet Suetonius tells us (in Vit. c. 56.), that "Afinius Pollio, who lived at that time, thought that they were written neither with due care nor integrity; that Cæsar was too often credulous in his accounts of what was done by other persons, and misrepresented his own actions, either delibera	ly, or through forgetfulness; and therefore he suppokes he would have revised and corrected them." At some times, however, it may without doubt be justifiable for a perfon to be his own historian. Plutarch mentions two cases, in which it is allowable for a man to commend himself, and to be the publisher of his own merits. These are, "When the doing of it may be of considerable advantage, either to himself, or to others." "Anciently," says Tacitus (Vit. Agric. c. 1.), "many wrote their own lives, rather as a testimony of their conduct, than from pride," remarking, "that the more virtues abound, the fmrer the reports of it are credited." But the ancient writers had a method of diverting the reader's attention from themselves, when they had occasion to record their own actions, and of thus rendering what they did less injudicious, which was by speaking of themselves in the third person; thus Cæsar never says, "I did," or "I said this or that," but always "Cæsar did," or "Cæsar said," Dr. Johnson has given an account of paper on the subject of biography in the collection of papers called "The Filler;" Volney, in his "Lectures on History," remarks, that biography is the only kind of history that is proper for young people. See History.

Dr. Priestley has constructed and published a "Biographical Chart," which is very useful to students in chronology, history, and biography. This chart, which is about three feet in length, and two feet in breadth, represents the interval of time between the year 1200 before the Christian æra and 1800 after Christ, divided by an equal scale into centuries. It contains about 2000 names of persons the most distinguished in the annals of fame, the length of whose lives is here represented by lines drawn in proportion to their real duration, and terminated in such a manner as to correspond to the dates of their births and deaths, in universal time. These names are distinguished into several classes by lines running the whole length of the chart, the contents of each division being expressed at the end of it. The chronology is noted in the margin on the upper side, by the year before and after Christ, and on the lower by the Christian æra, and also by the succession of fuch kings as were the most distinguished in the whole period.

BIOLE, L.L., in Geography, the chief place of a canton, in the department of Chambéry, and territory of Mont Blanc. The population of the place is about 1208, and of the canton at 5525 persons; the territorial extent contains 223 square kilometres, and 10 communes.

BIOCYNTHIUM, formed of best, life, and xanthere, light, a name given by some physicians to a supposed principle of vitality inherent in the heart, or blood, and remaining there as long as life continues. Of this principle, or innate heat, different accounts have been given by different writers; as Galp. Hoffmann, Curnius, &c.

Beguin has defended a process for preparing from human blood a vital balsam under this denomination; and J. Ern. Burgravius has written a treatise upon it.

BION, in Biography, a native of Proconnesus, was contemporary with Thucydides, and flourished about the 55th Olympiad, or 544 years B.C. Clemens Alexandrinus informs us, that he copied the titles, and abridged the works of
of Cadmus the Mileian, who is said to have been the first writer of history in prose, and to have lived before the Trojan war.

Bion, the Philosopher, was a native of Berythines, and flourished in the reign of Antigonus Gonatas, king of Macedonia, and died about the last year of the 143d Olympiad, or the 234th year B.C. He was a pupil of Xenocrates, being the son of a Laodemonian harlot; and when young, was sold as a slave to an orator, who afterwards gave him his freedom, and left him large possessions. Thus endowed, he went to Athens, and devoted himself to the study of philosophy. He was first the disciple of Crates, then of the Cynics, afterwards of Theodorus, and last of all of Thessalathus; but he adopted and maintained the opinions of Theodorus, called the atheist. He was skilled in geometry and music, and also in poetry and rhetoric; and went about from one city to another, displaying his talents. Several of his repartees, for which he was famous, are preserved; and Horace is supposed to allude to him in his "Ille Bionis fermoebus, et fale nigro." Epist. 2. lib. ii.

To a great talker, who asked him if he would, he said, "if you should have me grant it, let some other person ask it for you." Being on board a ship belonging to pirates, which was chased by another, the pirates exclaimed, "We are undone, if they discover we are!" And I," says Bion, "if they discover who I am." He ridiculed the contradiction of burning the dead as if they were inefable, and lamenting them as if they were infable. Some of his jests were offensive to morals and decency; for neither of these did he pay much regard. Notwithstanding his avowed irreligion, he recurred, when sick, to the practice of puerile superstitions, and submitted to death with great reluctance.


Bion, a celebrated Sicilian poet, was a native of Smyrna, and a contemporary of Ptolemy Philadelphia, about 280 years B.C. In Sicily or Magna Graecia, where he is supposed to have spent the last part of his life, Mofchus was his pupil; and from the beautiful elegance of this poet, we are led to infer, that he left his life in prison, and that the persecutors of this deed did not escape just punishment. As a poet he was highly esteemed; and his performances that are extant, though inconsiderable, serve as examples of the excellence to which the Greeks had attained in similar compositions. Nothing can be more sweet and tender than his "Elegy on the death of Adonis," nor anything more elegantly ingenious than his "Cupid instructed." The works of Bion are usually printed with those of Mofchus; and the best editions are those of Paris, in 1680; of Venice, in 1749; Fleklin's, at Oxford, in 1748; Scheir's, at Leipic, in 1752; and Wakefield's, Lond. 1795. Gen. Dict. Gen. Biog.

Bios, M. mathematical instrument maker to the French king, died at Paris, in 1733, at the age of 78 years, and is known to mathematicians as the author of two works: one, On the construction and principal uses of mathematical instruments, translated into English with additions, by Mr. Edmund Stone; and another, "On the Ufe of the Globes," the fifth edition of which was published at Paris, in 1728.

Bioncourt, in Geography, a town of France, in the department of the Meurthe, and the chief place of a canton, in the district of Chateau-Salins, 2 leagues W.S.W. of Chateau-Salins.

Bisckna, in Ichthyology, a species of Cyprinus, having thirty-five rays in the anal fin. Found in the lakes of Sweden. Linnaeus. This is Cyprinus quinqualis, pinna an officulorum 23, of Ardeti.

Biondo, Flavio, (Lat. Blondus), in Biography, an antiquary and historian, and one of the first who illustrated the Roman antiquities, was born at Forli in 1388, and studied at Cremona. Being deputed in his youth on public business to Milan, he there made the first copy of Cicero's treatise on famous orators. At Rome he became secretary to pope Eugenius IV., and served the three succeeding popes in the same office. He was employed in various delegations to Venice, where he had an opportunity of cultivating an acquaintance and friendship with many learned persons in that republic. Debarred by his marriage from enjoying any church preferments, and devoted to study more than to the pursuit of wealth and honour, he preferred retirement to any public hateful, and prosecuted his literary labours till his death in 1453. His long residence at Rome enabled him accurately to describe its chief relics of antiquity in 3 books entitled "Roma impluvia," which were followed by 10 books on the laws, government, customs, religion, &c. of the Romans, under the title of "De Roma Triumphans." Another work, on its history, antiquities, and geography, was entitled "Italia illustrata." All these works display great reading and diligent research, though they are not free from many errors to which his ignorance of Greek literature must have contributed. Having undertaken to write a general history from the decline of the Roman empire to his own time, he finished three decades of it, and the first book of the fourth. He also wrote a book "De Origine et Gestis Venetiarum," and had planned an entire history of the Venetian republic; but he afterwards chose to infer the substance of it in his general history. He left several other writings in MS., which it is needless to mention. His style wants purity and elegance, and his judgment in collecting materials was superior to his talent in using them. A collection of his works was published at Bafil, in 1531, fol. Novv. Dict. Hist. Gen. Biog.

Bjorko, Geography, a town of Sweden, in the province of Upland.

Bjornesborg, a town of Finland, on the cadd side of the Gulf of Bothnia, seated on a lake, 80 miles north of Abo. N. lat. 62° 6'. L. long. 22° 35'.

Bjorse, a small island of Denmark, near the south coast of the island of Tunen.

Björnstafl, James Jonas, in Biography, a learned Swedish traveller, was born at Rotarbo in 1731, and having finished his education in the university of Uppsala, he became, in 1766, tutor to the son of baron Rudbeck, with whom he travelled for eight years through France, Italy, part of Germany, Holland, and England. At Paris, where he improved himself in the Oriental languages, he was elected, in 1770, a member of the academy of sciences, and upon the baron's return to Sweden, in 1775, Björnafalk received orders from the king to travel at his expense through the Ottoman empire, Syria, Egypt, and the northern part of Africa, and in the same year he was appointed extraordinary professor of philosophy at Uppsala. In the following year he commenced his travels; and having arrived at Constantinople, he continued there two years, improving himself in the eastern languages. In 1775, he was appointed professor of the Oriental languages at Lund. He died this year of a putrid fever at Salonic. The result of his observations in the course of his travels was communicated in a series of letters to C. G. Gjörvall, librarian to the king at Stockholm; and a complete collection of them appeared at Stockholm, in 1778, in three volumes, 8vo. under the title of "J. J. Björnafalk's Bref rörande des utländiska Refa tii utgifaren C. C. Gjörvall." A German translation of this work was published at Stralsund and Roßstock, in 1783, in six volumes, 8vo. The principal object of Björnafalk's research was Oriental MSS. from which he made many important and useful extracts. Gen. Biog.
BIPED, in Zoology, an animal furnished with only two legs. Man and birds are bipeds. Apes occasionally walk on their hind legs, and seem to be of this tribe, but that is not a natural position for them, and they rest upon all their legs like other quadrupeds. The herbivorous are also of the latter description, jumping and leaping on their hind legs, but resting on the fore legs likewise.

Plato, we are told, once described a man to be a biped without feathers; and Diogenes, in order to show what he deemed the absurdity of this definition, plucked all the feathers off a cock, and placing it in the mélée of the Academy school, exclaimed, "there is one of Plato's men!"

BIPED, BIPEDS, BIPEDS, a genus of reptiles that belong to the lizard family, in the system of La Cepede. These have, according to the character established by the author, a very long body covered with scales, and the toes of the two little feet, which are placed anteriorly, are armed with nails. La Cepede describes only one species of this genus, which he calls le canelle; it is a native of Mexico, and preserved in the museum at Paris. La Cepede, it appears, was the first writer who described this creature; but Dr. Shaw noticed it afterwards in the Naturalist's Miscellany, under the name of lacerta amblyceps, a stenodactyl lizard, which see; and a specimen of it, about half the size of that in the museum at Paris, is preserved in the British museum. This must not be confounded with lacerta hopei of Linnaeus. Pallas has described another kind of biped lizard, which is called lacerta opes, but in that the legs are very small, monodactylous, and placed far behind: some have almost doubted whether this may not rather be part of the organs of generation than legs; and in general appearance the creature approaches rather to the lizards than to the lizard tribe. It is a native of the southern part of Siberia, and also of Greece, and is of a ferruginous colour.

BIPEDUS, in Roman Antiquity, a two-edged ax, used anciently by the Amazons in fight: as also by the Samian, to cut asunder the ropes and corage of the enemy's vessels. The bipedus was a weapon chiefly of the oriental nations, made like a double ax, or two axes joined back to back, with a short handle. Some compared it to a figure of a pen, and supposed it hence to have acquired the name bipenis; the tube or barrel of the pen representing the handle, and the point or nib the head. Modern writers usually compare it to our halberd, or partisan; from which it differed in that it had no point, and that its shaft or handle was much shorter. See HALBERD.

BIPES, in Zoology, a species of Lacerta, with the body subequal, round, furnished, and pale; on each side a brown dot; no anterior feet; posterior feet with two toes unmarked. Gmelin. Anguis hopei, with Cecum abdominal, and 60 subcaudal plates. Linna. Mamm. Fr. VIII. A native of South America and India. Length about six inches; body cylindrical and slender; color pale yellow. Biped lizard.

Bipes, a species of Coluber, described by Gmelin on the authority of Scopoli, as an inhabitant of the Tyrrhenian waters, where it is said to feed on frogs and fishes; it has two feet, fulvous eyes, white under-jaw, elliptic, marginate, dorsal scales; its feet spotted with white; abdominal plates whitish, with a brown spot in the middle. Gmelin describes it specifically as having 116 plates on the belly, and 58 subcaudal scales.

BIPINNULA, in Botany. See ARTEMISIA.

BIPICULATA, in Conchology, a species of Voluta, figured by Martin only. It is of a tapering shape, smooth, white spotted with yellow, and dotted with black; lip acute; pillar with two plait.

BIPUNCTARIA, in Entomology, a species of Phalera (Geometra), the anterior wings of which are cinereous, undulated with brown; a dull black band in the middle, and two black dots. Fabricius, &c.

BIPUNCTATA, a species of Apes that inhabits Siberia. This insect is hairy and black, with two yellow belts; the firlt with two lateral black dots. Lepechin, it. Gmel.

BIPUNCTATA, a species of Aranea, with a black, globulo abdominal, marked with two excavated dots. Linna. Fa. Sur.

BIPUNCTATA, a species of Caneus, with two black spots on the thorax; wings, black at the tip. Fabricius.

BIPUNCTATA, a species of Caneus, with two black spots on the thorax; wings, black at the tip. Fabricius.

BIPUNCTATA, a species of Chrysomela, described by Fabricius as a native of the Cape of Good Hope. It is ferruginous, with a brown spot on each of the wing-cases.

BIPUNCTATA, a species of Cicada, described by Linnaeus. It is yellow, with two brown spots in front; wing-cases white, veined with yellow. A native of Europe.
BIPUNCTATA is also a species of Cicada (Deflexa), found in South America. The colour is whitish; wing-cases deflected, and greasy, with two imprinted dots on the anterior part of the margin of the thorax. Fabricius, &c.

BIPUNCTATA, a species of Coccinella, of a red colour, with two black dots. Linnaeus, Fn. Suec, &c.

BIPUNCTATA, a species of Porticula, that inhabits Italy. This is black; hind part of the head and legs rus- 

BIPUNCTATA, a species of Leptura, of a black colour, ve- 

BIPUNCTATA, a species of Tantuloides, a species of Leptura, of a black colour, ve-

BIPUNCTATA, a species of Phaenea (Tinea), wings cinerous brown, with a marginal white spot. Fabricius.

BIPUNCTATA, a species of Phaenea (Tinea), with fuscous wings, with a common de- stated white stripe; tho- 

BIPUNCTATA, a species of Chrysonella, described as a Swedish insect by Thunberg. The wing-cases are black, spotted at the tip, head and sides of the thorax yellow. Fabricius, &c.

BIPUNCTATA, a species of Coccinella, of a black colour, with red spots, and fuscous abdomen. Linnaeus, Fn. Suec.

BIPUNCTATA, a species of Coccinella, of an ovate form, and black colour, with red spot on each of the wing-cases. Fabricius and Gmelin. This is Sipho oblonga nigra, &c. of Linnaeus, Fn. Suec. and Syll. Nat. Sipho, of Degener; Denneis, of Geoffroy; and Ophoma bipustulata, of Linnaeus. Inhabits Europe, and feeds on cereals, meat, bacon, &c.

BIPUNCTUM, a species of Opalatum, that inhabits Up- 

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BIPUNCTA, a species of Gryllus (Acrisius, Tracula), of a brownish colour; feutelus long as the abdomen. A native of Europe. BIPUNCTA, a species of Gryllus (Acrisius, Tracula), of a brownish colour; feutelus long as the abdomen. A native of Europe. BIPUNCTA, a species of Gryllus (Acrisius, Tracula), of a brownish colour; feutelus long as the abdomen. A native of Europe. BIPUNCTA, a species of Gryllus (Acrisius, Tracula), of a brownish colour; feutelus long as the abdomen. A native of Europe. BIPUNCTA, a species of Gryllus (Acrisius, Tracula), of a brownish colour; feutelus long as the abdomen. A native of Europe.

BIPUNCTATA, a species of Cryptoccephalus, of a glossy black; wing-cases red with two black dots; antennae length of the body. Fabricius, Gmelin, &c. Chrysonella punctata. Linnaeus. Inhabits the northern parts of Europe; on the Nut. BIPUNCTATA, a species of Cryptoccephalus, of a glossy black; wing-cases red with two black dots; antennae length of the body. Fabricius, Gmelin, &c. Chrysonella punctata. Linnaeus. Inhabits the northern parts of Europe; on the Nut.

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ight or azure blue, rufous at the apex of the wing-cases; and the anterior of the same colour. It is an European insect, and inhabits the flowers of the Chrysanthemum. Gmelin confers it on Caryophylla media of Lichat.

**BIPUSTULATUS**, a species of *Dermestes*, that is black and glossy, with the head, thorax, and spot at the base of the wing-cases red. Thueng. This is *Ipse humanus* of Fabricius. Country unknown.

**BIPUSTULATUS**, a species of *Dytiscus*, described by Fabricius. It is smooth black, with two red spots on the posterior part of the head. This inhabits the north of Europe.

**BIPUSTULATUS**, a species of *Dytiscus*, that inhabits Germany. This kind is black, thorax and head, with two black spots; wing-cases yellow, varied with brown. Fabricius.

**BIPUSTULATUS**, a small species of *Elater*, found in woods in England and other parts of Europe; the colour is black and shining, with a yellow spot on each of the wing-cases. M. Gmelin, &c. (Bleek.) In Britain, this insect is the described by Gmelin. *Bipus*, *B. pollicillus*, *B. vulgaris*, and reference to the Fabrianian Species,sect. homonymum, in which the defect on the base of the wing-cases is laid to *Bio*.

This is *Elaterium pubescens* and *Elaterium bipustulatum* of Geoffroy.

**BIPUSTULATUS**, a species of *Gallus*, in the Section *Gallus* of a pale brown colour; found at the extremity of the abdomen, and two spots of the thym. black; wing-cases yellow, variegated with black, and smaller than the wings. Gmelin, &c. This insect makes its cell at the same length according to Schafte, the figure, exclusive of the antennae, which are thrice longer than the body. Inhabits Europe.

**BIPUSTULATUS**, a species of *Scarabaeus*, of a black colour, with a red spot on each of the wing-cases. A native of New Holland. Fabricius.

**BIPUSTULATUS**, a species of *Staphylinus*, that inhabits the northern parts of Europe. Colour black, with a ferruginous dot on each of the wing-cases. Linn.

**BIOQUADRATO**, or *Biocastaneous* *paw*, in *Algebra* and *Arithmetica*. It is the next power above the cube, or the square multiplied by itself. Thus, 16 is the bigendrate, or 4th power of 2, or it is the square of 4, which is the second power of 2; for $2 \times 2 = 4$, and $4 \times 4 = 16$.

**BIOQUADRATO**, or *Biocastaneous* *Equation*, an equation raised to the fourth power, or where the unknown quantity of one of the terms has four dimensions, thus, $x + ax + bx + cx + dx + e = 0$ is a bigendrate equation. See *Equation*.

**BIOQUADRATO**, in *Geometry*, a curve line of the third order, having two infinite legs, tending the same way. See *Equation*.

**BIOQUADRATO**, in *Arithmetic*, the square root of any number is, the square root of the square root of that number; thus, the bigendrate root of 81 is 9; the square root of 9 is 3; the bigendrate root of 81 is 9.

**BIOQUADRATICA**, or the *Geometry of the Square*, a book of the 4th of 1666. This was what the Algonquins held. The 4th, 5th, 6th, 7th, and 8th, are preferred because they are the squares of the deities, which are the realities of their religion. By giving the law of forming the cubic, and square of the Angle, they show the care of forming the forms of the several parts of the Algonquin society with neatness and exactness; so, in garrison, &c. From both these they were indebted; that is, copied of companies, or command and parts of letters.

**BIOQUADRATICA**, an aspect of the planets, when they are 144 degrees distant from each other. It is thus called, because they are difficult for each other by twice the fifth part of the 144 degrees. See *Aspect*.

**BIRACI ET BIRACIC**, in *Geography*, a town of Attica, at the mouth of the Euphrates, in a very fertile country, the residence of a boy; 100 miles S. W. of Darius.

**BIRABETANE**, in the *Botanical Writings of the Alcmaon*, a name given to *Bargent*, or *verdin*, and to other birds named in the same manner. It is only the word *birapoton*, as altered by the Gothic manner of writing and speaking in. *Microbatone* is the common Greek name of *verdin*, and other particular herds, and it is probable that the Latin name vicina came from the Gothic manner of speaking this word. All these birds, when they were laid upon the altar on solemn occasions, such as making of peace, and other solemn contracts, and were to be taken up by the contracting parties as part of the sacrifice, were called by the Greek *Birapotone*; that is, laid by the bird; and verbinon; but as the plant was particularly known by the name verbena was more frequent in the days of other on this occasion, it was afterwards changed by that name. See *Verbena*.

**BIRAKADEN**, in *Geography*, a town of Persia, in the province of Fars, about the sea of Zang."
in the pleasures of social intercourse with persons the most distinguished for their attachment to letters and science. With respect to theological subjects, his sentiments were rational and liberal, and he was a zealous friend to religious and civil liberty. In this respect his views and principles were conformable to those of the truly excellent bishop Hoadly.

In literary labour few persons have been more diligent and indefatigable than Dr. Birch. The first great work in which he engaged was, "The General Dictionary, Historical and Critical," comprehending a new translation of that of Mr. Bayle, and several thousand new lives, never before published. This valuable work was completed, principally by himself, with the co-operation of the reverend Mr. John Peter Bernard, Mr. John Lockman, and Mr. George Sala, in 10 volumes,folio. The first volume appeared in 1734, and the last in 1741. In 1737, he published "Professor Greaves's Miscellaneous Works," 2 vols. 8vo.; and in 1742, "Thurloe's State Papers," in 7 vols. folio, with a dedication to lord chancellor Hardwicke. In 1743, he edited "Cudworth's Intellectual System," his "Discourse on the Lord's Supper," and "Two Sermons," with a life of the writer, in 2 vols. 4to. His "Life of the Hon. Robert Boyle," 8vo. which has been since prefixed to the 4to. edition of that eminent philosopher's works, appeared in 1744; and in the same year he began a series of biographical sketches of distinguished persons, designed to accompany their engraved portraits by Howbraken and Vertue. The first volume of this work was completed in 1747, and the second in 1752. In 1747, he published in 8vo. "An Inquiry into the Share which King Charles I. Had in the Transactions of the Earl of Glamorgan, &c." a fact which, however overlooked, or disputed by some of our historians, was confirmed by the evidence adduced in this interesting publication, and has been since further corroborated by the Chendon plate papers. In 1748, Dr. Birch was the editor, in 2 vols. 8vo. of the "Miscellaneous Works of Sir Walter Raleigh," to which is prefixed a life of the author.

His next publication was "An Historical view of the Negotiations between the Courts of England, France, and Buffels, from the year 1592 to 1617; extracted chiefly from the MS. state papers of sir Thomas Elmore, and of Anthony Bacon, &c.; to which is added, a relation of the state of France, with the character of Henry IV. and the principal persons of his court, by sir George Carew," 8vo. 1749. To this volume Dr. Birch has prefixed a discourse on the utility of deducing history from the original letters and papers of the persons who were the principal actors in public affairs, followed by a biographical account of the three negociations above-mentioned, Mrs. Cockburn's "Theological, moral, dramatic, and poetical works," 2 vols. 8vo. with the life of that ingenious lady, were edited by Dr. Birch in 1751; and he also published an edition of "Spenser's Fairy Queen," in 4 vols. 1756. One of his most popular works, which was "The Life of Archbishop Tillotson, compiled chiefly from his original papers and letters," and dedicated to archbishop Herring, in one volume, 8vo., appeared in 1752; and in the following year he revised an edition of "Milton's Prose Works," in 2 vols. 4to. to which is prefixed a new life of the author. In 1754, he published in 2 vols. 4to. "Memoirs of the reign of Queen Elizabeth, from the year 1581 till her death, &c. from the papers of Anthony Bacon, &c. and other MSS. never before published," in which, besides a full display of the temper and actions of the earl of Essex, much light is thrown on the characters of the Ceciles, Bacons, and other eminent persons of that period. Dr. Birch's next publication was "The History of the Royal Society of London," in its first volume; in which the most considerable of those papers communicated to the Society, which have hitherto not been published, are inserted in their proper order, as a Supplement to the Philosophical Transactions." The two first volumes of this work appeared in 1756, and the other two volumes in 1777; and they bring down the history to the end of the year 1687. This is unquestionably an useful book of reference, and contains many particulars which may be of occasional service both to the philosopher and the biographer.

In 1760, Dr. Birch published "Letters between Colonel Robert Hammond, Governor of the Isle of Wight, and the Committee of Lords and Commons at Derby-house, &c. concerning the King's departure at Hampton Court, and in the Isle of Wight," 8vo.; and he closed his voluminous labours with "Letters, Speeches, Charges, Advices, &c. of Francis Bacon, lord viscount St. Albans, &c. in one volume, 8vo." Soon after his death, Dr. Maty published, "The Life of Dr. Ward," which he had just lived to finish; and he had also prepared for the press, "Historical Letters, written in the reign of James I. and Charles I." which Mr. Aylefough proposed to publish. In the list of his printed works we might also comprehend some papers communicated to the Royal Society, and some accounts of books in the works of the learned; but besides these, such was his unwearied affability in collecting every fragment pertaining to literature, and deemed by him of importance, that he left behind him 24 volumes 4to. of various papers copied by himself from the Lambeth library. Upon the whole, whatever may be thought of Dr. Birch's judgment in his election of materials, of the minutudes of his researches, of the justice and faithfulness of his inferences from the facts which he produces, and of the want of elegance and animation in his style, it must be allowed, that literature has already derived, and may yet further derive, great benefit from his labours. Biog.-Brit.
are as highly prized from furnishing occupation to the sportsman, or a delicacy to the epicure.

The anatomical characters of this class of animals are not less deserving of attention than their other properties. In the scale of animated existence, birds can scarcely be considered inferior to mammals; and yet many of their functions are exercised upon a very different plan, and almost constantly by organs differently constituted. It is in birds that we perceive the first general deviations from the scheme of organization pursued in the human subject: this will be found most remarkably exemplified in the apparatus for the preparation and digestion of food, the secretion of urine, the mode of generation, and the growth and economy of the young animal, the anatomy of the brain, the structure of the eye and ear, the mechanism of the organs of sound, and the construction of the instruments of loco-motion.

The anatomy of birds has been much professed both by the older authors and in modern times, as the means of physiological knowledge, and in aid of the several purposes for which these animals are so much esteemed. The information, however, communicated in this way, falls far short of a systematic account of the subject; to supply which, therefore, much original matter is necessarily introduced into the present article, more particularly in the descriptions of the blood-vessels, of the organs of motion, and of the minute structure and uses of parts. Many errors of the older writers are also corrected; and wherever the descriptions of others are followed, they have been, as far as it has been practicable, revised by a comparison with the recent subject or authentic preparations.

**Organs Concerned in the Exercise of the Vital Functions.**

**The Mouth and its contained Parts.**

In the other classes of animals, these parts are constructed to effect the division of the food previous to its passage into the stomach, but in birds the process of mastication is either imperfectly performed, or carried on by a peculiar mechanism to be afterwards described. Birds are unprovided with those soft and flexible parts called lips; the aperture of their mouth is made by the protrusion of the two jaws, which are covered with a hard and horny substance. These are named the upper and the lower mandibles, and together form the beak or bill. The bone which enters into the composition of the bill, will be considered along with the other parts of the skeleton. The external or horny part is produced, like other similar structures, from a vascular and spongy membrane, which is interposed between it and the bones; it corresponds exactly in shape with the jaws, which serve it as a mould.

The bill is defined for many different purposes, and consequently is subject to great variety in its constitution. In the birds of prey it is strong, hooked, sharp, and furnished with a tooth-like preciss on its edge, to enable them the better to seize and lacerate their prey; those birds which inhabit small grain, are provided with short, pointed, sharp-edged bills for picking up and breaking their food; the parrots also use their bills for dividing their meat: in those in which the bills can be compared, as it is incapable both from its thin edges, and from the nature of the articulation of the lower jaw, of performing any thing like the grinding motion in which poultry mastication consists.

The **pigeon** birds have commonly large and extended bills, which become necessary to them, in order to secure their prey; these birds almost always swallow their food without chewing it. **Swallows** and **goat-jack** ty have short bills, but opening very wide, suitable to their mode of procuring their food, which consists in taking flies while the bird is on the wing.

The **wood-pickers**, ***, **, &c., use the bill as an instrument for perforating the bark of trees, and breaking nuts; for which purpose it is constructed like a wedge.

It may, in fine, be given as a general remark, that the form and structure of the bill indicate the peculiarities and economy of the birds; they have therefore always been employed by naturalists as classificatory distinctions, and to their works we refer the reader for a more detailed account of the peculiarities observed in the bills of birds.

In consequence of a particular mechanism, arising from two additional bones, the upper jaw of birds is capable of a certain degree of motion. In general this is very confined, but the parrots tribe are able to move the upper jaw with considerable freedom. The bones and muscles upon which this peculiarity depends, will be described with the organs of motion.

The cavity of the mouth is lined with a thick vascular membrane, behind which are placed a great number of follicular glands, which discharge a mucous liquor upon every part of the surface of the mouth. They are, however, not abundant in those parts which fulminate motion, as the commencement of the oesophagus, and surrounding the aperture of the nares, in the upper and back part of the mouth.

A cuticular membrane is spread over the glandular membrane, which is as useful to soft and delicate, that it cannot without difficulty be detected.

The tongue of birds can hardly be considered an instrument of mastication; its motions are very limited, in consequence of its containing a bone which runs through its whole length, and the lingual bone being articulated with the hyoides, which determines the extent of its movements. The only birds, in which the tongue is immediately considered in the division of the food, are those **peppers** living upon seeds that are included by a bill. In such the tongue is employed to convey the food between the edges of the bill, and secure it there until it is broken, which is not unlike the action of the tongue of mammals during mastication.

The tongue of the **wood-pickers** and **cary-nests** is an organ of curious structure, and enables these birds to transfer their prey at some distance from the mouth; the mechanism by which this is accomplished, and the bones and muscles which belong to the tongue in general, will be particularly described with the other organs of motion. The varieties in external form, and the structure and integuments of the substance of the tongue, will be considered under the head of the organ of taste.

Salivary glands have been ascribed by most authors to birds; but, as it would appear, without due considering the uses of these parts. Birds, as already observed, do not communicate their food by mastication in the mouth, for which purpose the saliva is employed by other animals; and the glandular bodies, which have been described as salivary, appear to yield a fluid of rather a mucous than an aqueous nature. The internal surface of the mouth of birds is lined with mucous, in order to facilitate the passage of the food, which would not be necessary, if the aliment were licked by saliva.

The reputed salivary glands of birds are situated within the angle formed by the anterior part of the lower jaw, and between the skin and the inner membrane of the mouth. They are two in number, and appear to be composed of granular mucus, or sordes, closely connected to each other. They discharge their secretion into the lower part of the mouth, by means of some foramina arranged on each side of
the tongue. They would seem to be of the greatest size in proportion to the bird, where the food is hard and dry grain; they are larger in the common fowl than in the goose.

The Parian academicians observed these glands in almost every bird they dissected. In the goshawk they describe them as being situated towards the pharynx; and in the buffard, they found several glandular bodies.

**Oesophagus.**

The tube, which conveys the food into the stomach of birds, is not situated exactly on the fore part of the neck, but a little on the right side. It is partially covered by the trachea, and is connected to all the neighbouring parts by loose cellular substance; in consequence of which, and the want of a fixed bony attachment, the neck is much bent, it does not take the same degree of flexure, but falls a little off to the right side. This effect is best observed in some of the birds which have long and flexible necks, as the gosling and water birds.

The form of the oesophagus varies according to the habits of the bird, and the nature of its food. In the capacious birds, and those which sball on fish, it is of great capacity throughout its whole length, generally extending in width the stomach itself. The magnitude of the oesophagus not only enables those birds to swallow their prey whole, but answers the purpose of a repository for their food, and thus counterbalances the disadvantages arising from their precarious means of subsistence.

*H. ronie, the common Oystercatcher, &c.* will devour as much fish at once as will be sufficient to support them for a considerable time; and an ool is often obliged to exist for days or weeks upon a rat or mouse, which being swallowed, is conveyed by degrees into the stomach, until the whole is digested.

All the pescivorous birds have the oesophagus most capacious at its commencement, or next the faucæ, for the more convenient swallowing of their prey, which is always gulped down.

The *Pisces,* furnishes a most remarkable instance of a dilatation of the faucæ, in the pouch which is placed beneath the lower jaw. This bag, if full, is very conspicuous externally; but when it is empty, the bird has the power of contracting it very considerably; when completely distended, it is said to be capable of containing ten quarts of water. The internal part of the pouch appears to possess the same structure as the rest of the oesophagus; the skin covering it externally, is clothed with a short down, smooth and soft, like silk.

The *Pelican* derives a double advantage from this enlargement of the faucæ; it enables it to provide a supply of food and water for future necessity, and to transport nourishment to its young, until they can acquire it for themselves; in digorging the food for its family, the parent presses the bottom of the faek against her breast, and thus discharges its contents; from which probably arose the absurd fable of her opening her breast, and feeding her young with her blood.

A very remarkable provision of this kind has been described in the buffards, by Dr. James Douglas. In this animal there is a membraneous bag, extending for some way down the fore part of the neck, capable of containing several quarts of water; it communicates with the mouth by an aperture beneath the tongue. See *Plate I.* fig. 1. in the *Anatomy of Birds,* in which this part is represented, as it has been figured in Edward's *Natural History of Birds,* vol. ii. p. 73. *a* the pouch, upon which a ligature is fastened near its connexion with the mouth, *b* the trachea, and *c* the oesophagus.

The pouch of the buffard is confined to the male bird, according to most authors; some have, however, ascribed it to the female, and others have doubted its existence altogether. The Parian academicians dissected six buffards, and do not describe the throat sac, although all their subjects were males.

The buffard is said to use the pouch as a temporary reservoir of water, from which it supplies the female during the period of incubation, and likewise the young brood, until they can move from the nest. It has been also occasionally employed as the means of defence. Barington relates in his *Miscellanies,* p. 553, that at Morocco, where it is usual to fly the hawk at the buffard, the latter has been known to eject the water contained in the sack against his affianant, who is not uncommonly battered in the pursuit.

The crop, or coeexus, is a term applied to another species of dilatation of the oesophagus of birds. When this enlargement is single, it is situated upon the right side of the oesophagus, and placed so low on the neck, that a portion of the bag is accommodated in the space left at the upper part of the thorax, within the fold-shaped bone. Its form is in general globular, but rendered somewhat irregular, from its connexion with the oesophagus, which enters at the superior part, and appears again on the middle, by which means the greater part of the crop is formed into a cul de sac.

It is obvious, that the effect of this structure is not only to receive a greater quantity of food than can be digested, but also to detain it in the crop until it has suffered some change.

The birds in which the crop is found of the figure just described, feed usually upon grain or other hard substances, which require to be softened by maceration in the mucous secretion of the oesophagus. Of these we may mention the turkeys, the pheasants, the common fowl, the pinnate, the turkeys, the Indian fowl, the parrots, &c.

*Fig. 2.* of Plate I. in the *Anatomy of Birds,* exhibits the crop of the *Pheasant,* the *Ostrich,* and the common *Crawl,* the crop of the *Pheasant,* the *Ostrich,* and the common *Crawl,*

The Parian anatomists found the oesophagus very much enlarged in the goshawk, but to close to the gizzard that these two parts appeared to be confounded with each other; so that it was difficult to mark the superior orifice of the ventriculus; the situation of the bag also was very unsafe, being lower than the gizzard, into which the entrance was by the bottom, and thus what is commonly called the superior orifice, was really the inferior.

It is somewhat remarkable, that the *Buffard,* which is a graminivorous bird, and in most respects resembles those which have crops, should be quite without this provision, its oesophagus consisting of an equal and regular tube.

The *Parrot* has a dilatation of the lower part of the oesophagus, which is commonly reckoned to be a crop, though perhaps improperly, as the enlargement is neither so readily produced, nor in such a degree, as to obstruct the passage of the food into the stomach; the crop of the parrot is only calculated, therefore, to afford a temporary accommodation to its food.

Some carnivorous birds are furnished with a crop, which only serves the purpose of a reservoir, as their food does not stand in need of maceration to soften it, which is so necessary with hard and dry grain.

The most singular kind of crop is that found in the *Pigeon* genus. The oesophagus in these birds is of great capacity, from its very commencement, and at its lower part it swells out into two large fleshy masses, between which and the stomach it suffers a considerable contraction. See *Plate I.* of the *Anatomy of Birds,* fig. 3. *a* the upper portion of the oesophagus.
In some species, as the *pigeon*, the esophagus above the crops, is of such great dimensions, that the latter are hardly discernible; the birds also have the power of distending their esophagi with air, which gives them that grotesque appearance from whence they derive their name.

A crop is more necessary to the pigeon than other birds, both because its food requires long maceration, and because the young, and even, on some occasions, the females, draw their sustenance from this repository.

The extraordinary change which occurs in the structure of the inner membrane of the crops of the pigeon, by which a milky fluid is secreted, for the nourishment of the young birds, will be described in its proper place.

Although there is no distinction in the form of the esophagi we have described, the internal structure appears to be the same in all birds. It forms the external cellular covering, by which it is connected to the adjacent parts; it possesses a muscular coat, an internal vascular tunic, and a cuticular lining. The mucous layer consists of two layers of fibres; in the exter al layer these are not clearly, or properly circular; the other, thinner, is composed of longitudinal fibres. The muscular coat is only strongly marked at the top of the tube, where the actions of deglutition commence; and on the crops, where support and motion are required. The internal coat resembles in structure what is usually met with upon the inner parts of cavities; with the difference, that it is provided in birds with an extraordinary number of follicular glands, which pour out their fluid through numerous foramina, resembling pinholes, upon the external surface. These glands secrete a quantity of mucus, which is employed in macerating the food, while it is detained in the esophagus, or crop. This secretion is remarkably copious. Spallanzani introduced a piece of sponge into the crop of a pigeon; and after it had remained there twelve hours, he expressed from it above an ounce of mucus, and the quantity obtained from a turkey, amounted to seven ounces in ten hours.

The follicular glands are most numerous at the commencement of the esophagus, and towards the termination of this tube in the stomach, the inner surface of the crop is but sparingly furnished with them. See Plate I. of the *Aviary of Birds*, fig. 2, in which the esophagus and crop are inverted, for the purpose of exhibiting the surface of the mucous follicles, and in fig. 3, they assume a longitudinal and regular appearance below the dilated parts of the esophagus. It is very common for the mucous gland, to be assembled in a regular and marked manner round the very termination of the esophagus, as in Plate II. fig. 2, of the *Aviary of Birds*.

The tube, which constitutes the esophagus, is generally thin and tender, but in some cases of great size, it is also strong and firm, and in others, it is also smooth and elastic. The intestinal part of the esophagus terminates abruptly at the zone of gastric juice.

It may be remarked with respect to the esophagus of birds, that it is covered on the outside with a smooth and semi-transparent mucous coat, which is produced and secreted by numerous glands. These are, in fact, entirely dependent upon the very cellular structure of the stomach, which we shall next describe.

The organ of digestion in birds consists of two parts; one for producing the digestive fluid, and the other the receptacle in which the conversion of the food is effected. This apparatus for the secretion of the gastric juice is called

The *Belullus glanduliferus*, or the Zone of Gastric Glandules—This part is situated at the termination of the esophagus, and appears in some instances to be the continuation of that tube. It has the same cellular and muscular coats, which obscure its real structure, when perceived externally, especially in the granivorous birds, which have strong muscles upon the esophagus. When the outer tunic are removed, a number of small, hollow bodies are exposed, arranged with the most perfect regularity, and closely applied to each other. They assume an indistinct granular appearance in small birds generally, and even still more so in those which feed on animal food, as the *aphisinae* and *pehacranes* birds; but in the *oiures*, and the large *granivorous* birds, as the *pigeon*, etc., the gastric glands, when divested of their coats, are readily discovered, by the naked eye, to be small cylinders, or tubes, placed horizontally with respect to the posterior of the stomach; the external end is closed and of a rounded form; the internal extremity of the tube is sometimes cleft, and contains a small foramen, which is applied to a corresponding hole in the internal membrane of the bulbous glandules. See Plate II. in the *Aviary of Birds*, fig. 1. It represents a number of the gastric glands, with their external extremity expanded, by a portion of the muscular coat being removed; and in fig. 2. shows the oriiffes of these glands upon the internal coat of the stomach, by which the cut edge of the bulb, with the cylinder as they are placed between the muscular and internal coats. The subject of both the figures is the *callous zone*.

The gastric glands commonly commence the beginning of the stomach as a perfect and equal zone. In some instances, however, where they are not large, as in the *caprimulgus* and *fissipavine* birds, they are more numerous at one part of the stomach than another; see Plate III. fig. 2, which exhibits the stomach of the *hare*, *B. b*. The glandular bands of the stomach are not quite regular in the *sph 칼*; the structure of the glands also is not the same as in other birds; indeed being placed in regular and definite order, they are disposed in masses of an unequal form and size, separated for some distance from each other. On making a section of the mucus, they are found divided, or interrupted by processes of strong white cellular fibres; from which it would seem, that they are composed of several glands, although there is but one or two belonging to each mass on the internal tunic of the bulb. The magnitude of the orifices of the gastric glands, even exceeds the proportion to be expected from the size of the bird; being capable of receiving the head of a large pin, they stand at a distance of about 1/8 of an inch asunder, and do not appear with perfect regularity upon the internal surface of the stomach, being most crowded towards the centre, where their apertures are largest; the internal tunic of the stomach, from these circumstances, exhibits a worm-eaten appearance.

The gastric glands in all birds, like other parts, which produce an important secretion, are endowed with an extreme degree of variegability.

Some authors have described a cuticular coat, on the internal surface of the bulbous glandules, which they have compared to select on account of its soft and flamy texture; it appears, however, very doubtful, whether this covering should be considered a tunic or not; we have observed the tissues deeply stained, and wholly water; it certainly bore no resemblance to the epidermis of the esophagus, and filled the substance which invests the remaining portion of the stomach, or gizzard.

No very fatal experiments have yet been made upon the nature of the digestive fluids of birds. When it is exposed from the gastric glands, which is the only mode of obtaining. 
obtaining it pure, it is observed to be of an ash or pale yellow colour, turbid, and of a tenacious consistence, like mucus. Spallanzani found it in several birds to have a bitter and salt taste, which he attributed to a mixture with some of the fluids contained in the intestines; he discovered also, that the turbidity and the colour were produced by the existence of a number of yellow particles, too minute to be distinctly seen without the aid of the microscope, and which in a few hours subsiding to the bottom, left the supernatant liquor as transparent as water. He has remarked the yellow tinge to vary in intensity, according to the species; in the eagle, for instance, it is chasitrous, and in the crow a reddish yellow colour, like the yolk of an egg.

A number of the experiments performed by Spallanzani, although in some instances he failed, showed that the gastric fluid of carnivorous birds will act upon vegetable matters; and upon the other hand, that graminivorous birds can digest animal food; but his most interesting and important experiments on the properties of the gastric fluid, is that made to determine its powers of reftilling the operation of cold. "On a very cold day in winter," he says, "I exposed a small quantity (of the gastric juice of the eagle) in a glaft, on a window, along with two other glasses containing water, in one of which was diffolved a quantity of common salt, sufficient to give it a stronger tinge than the gastric fluid had. The thermometers placed beside the glasses stood at five degrees below o (twenty and threefourths, Fahrenheit). Of the three liquids, the first that was frozen, was the common water, the next was the salt water, and the last was the gastric fluid.

When I carried them into my apartment, where the temperature was three and half deg. above o, the first that thawed was the gastric fluid, next the brine, and lastly the water." The conclusion which necessarily results from this experiment is, that the gastric juice of birds, and from analogy, that of other animals, is capable of reftilling the effects of cold more than common fluids, or even those impregnated with a great quantity of salt; and therefore it may be considered as possessing some degree of vitality. If this supposition be admitted, it determines the nature of the digestive processes, so long a question in physiology.

The gastric fluid of the crow has been submitted to chemical examination by Scopoli, by which he discovered that it contained a quantity of gelatine and serous substance, some muriate of ammonia, and plophate of lime, with a large proportion of water.

The second part of the organ of digestion of birds, is not less singular than the structure just described; it immediately succeeds the zone of gastric glands, and when in the natural situation, occupies the left region of the abdominal cavity, in which position it is retained by the several reflexions of peritoneum, which constitute the air cells. From being the part into which the food is received in order to undergo the process of digestion, it has commonly received the distinctive appellation of stomach; but it would seem more confident, not only with the form of the digestive organ in some birds, and with its functions in other animals, to apply the term stomach, both to the gastric glands, and to the mucous bag which immediately receives their secretion, and the food; or for the greater convenience and clearness of description, the lower portion of the stomach, from the name of ventricle.

The greatest variety exists with respect to the structure of this part of the organ of digestion in birds: when it possesses a certain degree of mucularity, it is well known under the name of the gizzard; and when its mucus are so thin as to give it the appearance of a sappy bag, it is commonly, though erroneously, called a membranous gizzard.

Tournoy attempted to establish three classes of birds, according to the formation of their stomachs, calling the one Gastrulorum, and the other Hymenobrachia, but these terms were only applicable to the two extremes.

Vie d'Azir has admitted three distinctions in the structure of the stomach: the first that of the true gizzard, which gives infusions in the galle, the fowm, the goofy, &c.; the second where the muscles which compose the gizzard are not distinct from the other parts, nor very strongly marked, as in the thrush and jog; the third is the membranous stomat which it is called, which is found in the brm, eagle, cor- morant, &c. See the Introduction to Vie d'Azir's great System of Anatomy.

These distinctions are not, however, just; the gradation from the most muscular gizzard to the thinest ventricle, is regular and uninterrupted; in order to understand which, and the other variations in structure, it is necessary that the true gizzard, or muscular stomach, be first described.

The external form of this organ is usually an irregular oval, the two ends of which are made of the great lateral or digastric muscles.

This muscle constitutes the principal mass of the gizzard; its attitude with respect to the bulbous glandulofus is oblique. The two fleshy portions are united by means of a strong tendon, on each side of the gizzard, which in the centre is distinct from the portion of the ventricle.

The portion of the gizzard, which separates between the two fleshy masses of the digastric muscle, and which is covered by the tendon, belongs to the cavity of the ventricle; it is composed of fleshy fibres, passing in several directions, as may be most convenient for diminishing the cavity. Many of these fibres are continued into the substance of the digastric muscle, and others are in its outer margin, thus giving integrity and connexion to these two portions of the ventricle. See Plate II. fig. 1, in the Anatomy of Birds, which represents the external appearance of the stomach of the wild fowm, bb, the fleshy parts of the digastric muscle, a, the tendon connecting them to each other, dd, the parietes of the ventricle on the superior part, e, the same, inferiorly, f, the margins of the digastric muscle, with fibres passing along them.

The disposition of the fibres in the interior of the digastric muscle is exceedingly curious. They appear, upon a superficial view, to be arranged in thin concentric laminae, separated from each other by the most delicate tendon. These layers pass to the lateral tendons on the circumference, so that their force is exerted upon them. See Plate III. fig. 1, which is the section of the gizzard of the goofy, a a, the two great masses of the muscular substance, bb, the tendons by which they are connected to each other. But if another section be made, parallel to the sides of the gizzard, or across the concentric layers, we have found each of the laminae to be divided by a great number of delicate tendinous processes which form with each other squares and triangles of various shapes, producing a reticulation, not unlike a honeycomb. The extraordinary multiplication of muscular fasciculi, which arises from the lamellated and reticulated structure of the gizzard, creates a force which almost surpasses calculation.

On laying the gizzard open by cutting through the tendon, which is the thinnest part, it is observed to be covered internally with a rude, callous fibres, of a dark brown colour; this is thin and pliable upon the portion of the ventricle, not included by the digastric muscle, and partakes of the motions of the cavity; but when it covers that muscle, it becomes as tough and inelastic as the hoof of a quadruped: two oval surfaces are seen to project beyond the other parts; they are raised upon the interior of the thickest portions of the digastric muscle, and the horny integument when
when passing over them acquires nearly the thickness of an
eight of an inch. Plate II. fig. 2, in the Anatomy of Birds,
shews the gizzard of the wild fowm laid open, $d$ the divided
tendon, $e$ the cuticular or horny covering of the gizzard,
ending decidedly at the commencement of the intellec,
and below the zone of gastric glands; at the latter place the edge
is shewn detached, $f$ the two prominent oval surfaces, $g$ the
origin of the intellec, which being cut off short on the
outside permits the light to appear through it.
The cavity of the gizzard differs very much in shape and
extent from what might be expected, from the external
figure of that organ. When all foreign matter has been
removed, the two prominent oval surfaces approach each
other, leaving only a slit between them; any thing that de-
serves the name of a cavity, is situated above and below the
place where the tendons cross (see Plate II. fig. 2.), for just
within the tendon there is not cavity sufficient to contain the
end of a finger. See Plate III. fig. 1, which shews a section
in which the two oval surfaces are applied to each other,
leaving at either end the appearance of a round hole, by
means of which the superior and inferior cavities of the ver-
tricle have communication.

When the horny or insensible lining is removed, there ap-
pears another coat to the gizzard. This is soft, somewhat
spongy, and endowed with vacularity; it is intimately united
to the muscular substance of the ventricle, on one side, and
on the other affords a surface for the adhesion of the horrry
coat; the connexion with which appears to depend upon the
mutual insertion of villous processes, too fine to be distinctly
perceived by the naked eye.

Such is the description of the muscular ventricle, or true
gizzard, as it exists in the swan, the goose, the duck, the phe-
sant, and common fowl, the pintado, the turkey, and a few
others. In few of the greater number of birds, there is a
deviation from the structure of the gizzard. The digialtric
muscle is less powerful, its tendon is incorporated with the
parietes of the ventricle; the oval, or grinding surfaces, are
little or not all distinguishable from the rest of the cavity,
which is therefore of larger capacity; and, lastly, the sub-
fintance lining the ventricle is less tough, thick, and hard,
approaching more to the nature of cuticle. It would be
collass to enumerate all the different instances of intermediate
structure, which we and others have observed; suffice it to
say, that it exists in almost all the fowlfes, or small birds which
fobbit upon a mixed food, such as grain, worms, insects, and
fruits; also in most of the order fowlfes, and in many of the
gralle and afnere, which are parivated as game. In all which
instances the deviation from the true structure of the gizzard
varies in degree according to the nature of the food fuced by
the bird; may, differs from this cause in the same individual.
Thus the gull has a strong muscular ventricle, when fed upon
grain, which, if the bird be supported by fill, becomes so
thin as to approach the membranous stomach.

It is remarkable, that many birds which live upon grain
and hard substances, have neither a very muscular ventricle,
or the horny integument very thick. This is the case with
all the fleshfes birds, and some gallines, as the buffard.
The stomach of the officin is capacious; the digialtric
muscle is thin, considering the size of the bird, and the na-
ture of its food; and the cuticular coat is so folt, that it has
been aptly compared by several authors to flannel. The
Parisian anatomists describe the stomach of the caffenerary
as being thinner than that of the officin, and divided into
two parts by a valvar projection of the inner coat.

When the digialtric muscle becomes so thin as to form a
mere layer of fibres, in close union with the other coats of
the stomach, and its tendons only fine aponeuroses, expanded
on each side, the ventricle is termed membranous; an im-
proper appellation, inasmuch as the very same parts exist,
which belong to the powerful and mitful gizzard, although
in a diguized and diminished form, and unequal to the same
functions; affording thus a curious example of the uniformity
with which nature copies her own works.

This species of stomach is almost confined to the accipitres,
or rapacious birds, and those on which the galle and afnere,
which feed on fish. The woodpecker also posfesses it, and prob-
ably it may be found in some foreign birds, which live on
insects and fruit.

The subfintance lining the membranous stomach is much
thicker than common cuticle. It is occasionally folt, and
almost of a glutinous consistence, and easily detached from
the internal coat of the ventricle.

The shape of this kind of stomach is usually a semi-oval,
or the section of an egg. Several of the officinaria birds, as
the heron, bittern, pelican, &c. have, however, a second
chamber, through which the food passes in its way to the
intellec. See Plate III. in the Anatomy of Birds. Fig. 2.
is the stomach of the bezon; $a$ the lower part of the esoph-
gagus, appearing smaller than it really is, from being thrown
into foids; $b$ the zone of gastric glands, distinctly seen through
the coats of the stomach, in consequence of the cavity being
dented with a transparent fluid, and afterwards placed against the light. If Spallanzani had em-
ployed the same expedient, he could not have denied the
existence of a distinct glandular structure to the bezon; $c$
the inferior part of the stomach, chiefly composed of muscular
fibres, spreading in a radiated manner from the lateral spon-
necrals; $d$, which supplies the place of the great tendons
of the digialtric muscle; $e$ the second stomach, furnished
with circular muscular fibres; $f$ the first intellec arising
from the additional ventricle. The communication between
the two stomachs is very straight in the pelican.

Having described the structure of the digestive organ
of birds, it remains to consider its functions. In those cases
where the muscle power of the stomach is inconsiderable,
and the cuticular coat thin and foft, digestion is carried on
in the same way as in man and other animals, with this dif-
fERENCE only, that the gastric fluid is furnished by a distinct
apparatus of glands, instead of being secrected by the whole
surface of the cavity. In the true gizzard, however, we
perceive an extraordinary departure from the common
structure of the organs of digestion. This part supplies
the place of the teeth of other graminivorous animals. In its
mechanic powers and action it resembels a mill; the upper
part serves as the receptacle for the grain; the two internal
projecting oval surfaces correspond to the mill stones, and
the intellec lining receives the substances in the ground or
divided state. The experiments made at the academy of
Cimento, and those of Reanurn, Spallanzani, and others,
shew that the gizzard is a machine of no ordinary powers.
These experiments confided in compelling birds to swallow
hard and unyielding substances, and, after some hours, ex-
amining what effect were produced upon them.

When bills of glass, or other brittle substances, were em-
ployed, they were speedily reduced to powder; metals and
precious stones were conibined or reduced. Spallanzani in-
roduced into the gizzard of the turk and common fowm,
leaden balls, armed in one instance with two sharp needles,
one quarter of an inch long; and in another, ft with as
many lance points. Upon destroying the birds 18 hours
afterwards, the needles and balls were found broken off,
and marks of impaction appeared even upon the balls them-
selves; and, what be considered more extraordinary, the
coat of the gizzard were perfectly unfurst. When we con-
side
BIRD.

Sider the immense strength which is obtained by the arrangement of the muscular fibres in the gizzard, and the horny consistency of its inner coat, there appears nothing incredible in these effects. And there is still another circumstance, not before mentioned, which fully accounts for such extraordinary powers of triturating: every muscular bosom or gizzard contains a number of small stones or pebbles; the size of the stones is proportioned to that of the bird. Their number is subject to vary from many accidental causes. Two hundred have been reckoned in a turkey-ben, and above a thousand have been taken from the gizzard of one goose.

Spallanzani denied that these stones were at all required for the comminution of the food. He has endeavoured to support his opinion by several experiments, which are, however, not clear or convincing with each other, and in contradiction to general observation; for it is well known, that birds do not thrive when they cannot obtain small stones, and that it is part of the duty of the parent to provide them for their young, before they leave the nest. Spallanzani acknowledges that he could not procure any bird so young, that it had not some stones in its gizzard; and therefore he was obliged to rear pigeons and turkeys even from the shell, before he was able to succeed. Birds, far from swallowing stones from kennels of appetite, or in mirth for food, seek out and select those most suitable to their purpose, which are almost all bits of quartz, of an equal size, and a roundish figure, with many small sharp angles.

Large birds, as the feralious bird, the bufard, &c. are in the habit of swallowing coins and pieces of metal, which necessarily suffers a reduction by the friction to which they are exposed; and hence has arisen the ridiculous notion of the offish digesting iron.

We have no hesitation in deciding, that the extraneous bodies found in the gizzard are absolutely required for the perfect division of the food used by those birds that employ them. In further proof of which opinion it may be mentioned, that they are proportioned in quantity to the degree of muscularity possessed by the ventricle, and the nutritive quality of the food; and that those birds which have thin stomachs, and live upon animal food, never designedly swallow stones, or other indigestible substances.

In order to ascertain the mode of operation of the gizzard in the living body, Reaumur opened several fowls during the process of digestion. One instance alone threw any motion in the part, which consisted in alternate contractions and dilatations, slowly and gradually performed. Spallanzani instituted similar experiments upon several birds, with no better success, being seldom able to detect the least motion; and when he did perceive any, it was irregular, partial, and indistinct. This he attributed to the violence committed by opening the animal's body, which no doubt causes the motions to be less strong and regular; but the gizzard's exhibiting externally so little action, depends upon the disposition of the fibres in the interior of the digestive muscle, which are calculated, not for performing extensive motions, but for exerting an immense concentrated force upon whatever may come within their influence.

The most satisfactory, as well as convenient, mode of examining the actions of the living gizzard, is to provide a very lean, young bird, which has thin parites to the abdomen. The side of the belly being deprived of feathers, all the motions of the gizzard can be both felt and seen. We have thus ascertained them to consist in alternate contractions of the digestive muscle, and of the intermediate parts of the ventricle. When the muscle acts, its figure is not perceptibly changed, but it feels as hard as a stone; upon its relaxation, the parites of the ventricle urge their contents again between the two grinding surfaces, when the muscle repeats its powerful contraction, by which the substances interposed are submitted to a pressure like that of a vice, accompanied by a slight rolling motion of the surfaces upon each other. These alternate actions succeed each other very slowly, but with regularity.

When the food and stones roll under the pressure of the digastric muscle, a sound is heard exactly like what is produced by the tide coming upon a shore, where there are many loose stones. This occurs with the same intervals of time, also, which are observed between the flux and reflux of the tide; and if the ear be applied to the body of the bird, during the time that the gizzard is in action, the sound of the ebbing and flowing of the tide is imitated so perfectly in loudness, and every other respect, that it is difficult to conceive it is occasioned by any other cause.

During the time that the food is undergoing a very minute division, in the manner described, the gastric juice is diffiluted from the bulbus glabulinosus in greater quantity than usual, and a more intimate mixture is formed of the digestive fluid and the triturated food, than could be accomplished under any other circumstances; and therefore we may look upon the process of digestion in granivorous birds, as not only more complicated, but more perfect than it is in animals in general.

Intestines.

These are divided in birds, as in other animals, into great and small, although the terms are not very appropriate; there not being in general any material difference in the magnitude of each.

The small intestines exceed the large very much in length; they are situated chiefly in the anterior and right side of the abdomen, where they are strictly confined by the processes of peritoneum, which form the sinews. The convolutions of the intestines are very regular, and consist in successive doublings one shorter than another, which give the appearance, on opening the abdomen, of a coil of rope, particularly in those birds which have the small intestines of considerable length. This effect depends upon the figure of the mesentery, which is not composed in quite the same manner as in mammalia.

The division of the small intestines into duodenum, jejunum, and ilium, is at all times to a certain degree arbitrary, and is still less allowable in birds. The only portion which deserves to be distinguished from the rest of the tube, is the fist coil; which ascends on the right side of the stomach, including in its reflection the pancreas, and receives the biliary and pancreatic ducts.

The length of the intestines is determined usually according to the nature of the food upon which the bird lives; they are longest in the granivorous, and very short in the accepites. Many birds, however, which use a mixed food, or even live altogether upon fish, have the small intestines of great length; this is the case with the heron, and several others. The whole of the intestines of the corvornant, according to the Parisian anatomists, measured seven feet long; and what is difficult to explain, those of the bufard and capercay, although large and granivorous birds, were only four feet in length. The different offish distillated by the Academy, varied materially with respect to the length of the intestinal canal, one subject measuring fifty feet, another forty-two, a third thirty-three, and a fourth twenty-nine feet.

There is very little peculiar to be noticed in the structure of the small intestines. They are, as in other animals, covered externally by peritoneum, have two layers of muscular fibres, and their internal surface is furnished with those innumerable fine vascular processes called vili. The granivorous.
true birds have commonly the longest villi; in the goose and
swan they are irregularly beautiful, floating a considerable
way into the cavity of the intestine. The birds of prey, and
those which feed on fish, have the villi in general too small and
insignificant, that on a slight injection, the inner surface of
the intestine appears quite smooth. The coel, however, forms
a remarkable exception to this observation in having long and
pendulous villi.

The vascular processes upon the internal surface of the
small intestines of the sdf'k do not possess the usual villous
or hair-like form, but consist of very thin plates, or lamellae.
These are short, with the edges somewhat round, and placed
not in succession, but alternately one with respect to another,
so that each lamella stands opposite to the interstice of the
two adjoining, by which means the surface of the intestine
presents very exactly the appearance of twilled cloth. The struc-
ture producing this effect cannot be seen completely, as
may be supposed, without a magnifying glass.

We have not observed in birds any thing analogous to
those projections of the internal coat of the small intestines,
which in other animals are called culda enuniventres. The
Academicians, however, relate that they found in the buffal
the inner tunic of the ilium folded longitudinally, in the
manner of the left flamach of ruminating animals, and that
the two extremitics of this extintine there were some trans-
verse wrinkles, which supplied the place of the valve of the
colon.

Throughout the tract of the intestinal tube, we have dis-
covered several clusters of mucous glands; where these are
situated, the internal coat appears as if slightly ulcerated, or
not unlike a dyenteric intine, instead of that regular
dotted figure which the mucous glands commonly exhibit in
mammalia.

The great intestines, as they are called, bear no fort of pro-
portion to the small, in point of length: in many instances,
even where the latter are of considerable extent, they do not
exceed a few inches. They only admit of division into two
parts: the coccal appendages, and the continuation of the
tube until it terminates at the anus. The first correspond
with the intestinum cocceum of mammalia; and the other
takes the place of the colon and rectum; but which from its
extreme shortness and direct course to the anus, would
appear to deserve only the name of rectum.

The coccal appendages are subject to as much variety as
perhaps any other part of the structure of birds. Generally,
they are two in number; in which case, they arise rather ab-
ruptly from opposite sides of the intestinal tube, about the
place where the convolutions cease, and the intine becomes
straight.

It may be received as a general rule, to which, however,
there are some striking exceptions, that the magnitude of the
cocca is in proportion to the musculature of the ilamach; we
accordingly meet with this organ of the greatest size, and the
strongest characters in the gallinae and other gramar-es-
new birds, from which it will be found most convenient first
to take the description.

The cocca in these birds commonly ascend for some way
quite close to each side of the intine, from which they
arise; during which they are left on the other parts of the
intestinal canal; they then make a flight curve outwards,
and become somewhat enlarged, and towards the superior
extremity they again diminish before their termination in the
col desoe. These parts reach up in the abdomen to near the
iver, and often make a flight curve round the ilium; they
are connected to each other, and to the intine between them,
and also retained in their relative situation in the ab-
domen, by reflections of peritoneum, of which some are ana-
lagous to the meso-colon and meso-rectum, and other con-
tribute to the formation of the air-vells. See Plate III, in
the Anatomy of Birds. Fig. 3, represents those parts in the
pinata, or guinea hen; a the small portion of the small intesti-
ne placed between the two cocca, b the coccal, c the rectum, d
the peritoneum connecting these parts, e a processes of perito-
neum pulling out from the top of one cocce to another.
If the cocca be slit open, it is found that they communicate
with the return by an aperture which is smaller than their
own cavity at the place; and consequently, any substance
will pass with difficulty into them from the other intestines,
and likewise be obstructed in its return.

Just within the entrance of each cocceum, there is a clus-
ter of mucous glands, which appear like two spots of ulceration.
These are particularly useful in this situation to smooth
the passage of habitations in and out of the cocceum.

The contracted parts of the cocce are in some degree vil-
ous on the inner surface, and ressemble in structure the out-
let of the intestinal caudal; but the dilated parts are deprive-
of villous, possess very little vincterality, appear to have few, if any,
mucous fibres, are without mucous glands, and are little
better than simple membranous tubes. These parts contain
the exuviae of the food.

All the uiles which the cocce serve to animals are certainly
not yet known; and the functions of these organs in birds are
amongst the least understood. The magnitude of their
cocce is not always in proportion to the apparent necessity
for such referors; often, when they might be expected
large, they are small, or absent altogether, and sometimes,
where the nature of the food would not seem to need these
repositories, they are of considerable size. With the view of
determining their uiles, they were removed from the living
hen, and the consequent is said to have been, that the ani-
mal would not admit any food from the crop into the gizz-
yard, from which it might be inferred, that these organs
serve other and more important purposes in the animal
economy, than mere referors of excrement; that, how-
ever, they are employed as a sort of temporary fewers, to
receive the undigested parts of the food, is obviously true;
and that in doing so, they answer an useful purpose, appears
to be proved, in the instance of some exceptions, by the more
numerous instances of their bearing a decided relation to the
digestive organs, and the quality of the food.

The same structure which has been described in the guinea
hen, or pinata, is to be found with little variation in all
the gallinae except the pigeon, and in the hermaphroditic anates,
such as the fowal, the goose, &c.

Daudin describes the cocce of the heath-cook (tetrao wog-
gallus), and of the sobic grous (terraethioprop), as grooved or
fluted longitudinally.

The cocce of the furttich are different from those of other
birds; they are large where they commence, and diminish
gradually towards their termination; they suffer many con-
volutions in consequence of a longitudinal band upon the
abdominal side, which is only two-thirds of their length; they
are faceted, or divided into lobes, throughout their whole
extent, by means of a circular projection of the internal
capsule, which is laid in a spiral manner, similar to the valve of the
diaphragm in the hare and rabbit in mammalia, or the ray
and flank kind amongst birds.

The spiral lamina is about five lives in breadth, but be-
comes somewhat less towards the extremities of the cocce.
This lamellated structure is continued for some way into the
other great intestines, and even into the small intestines; no-
ever, however, as one spiral valve, but in several transverse pro-
genctions, which have a semicircular figure, and are placed alter-
nately, so that one lamella is received between two others,
in the manner of the diaphragm of the bivalve shells. Plate
III, fig. 4, is a portion of the first part of the great intestine.
er colon of the ostrich, represented of the natural size and cut across, to show the semicircular lamina on the inside.

The effect of this structure is obviously the retention of the excrementsitious part of the food for a longer time in the ceca, which is accomplished in other instances by the smallness of the aperture through which these parts communicate with the rest of the intestines. This organ is not similar in the other Fruticibus birds. According to the Pariagan dissectors, the ceco-nary is not provided with any rectum. In the ceco-nary, or (with more propriety) ostrich, of New Holland, we have found two cecal appendages, which opened into the rectum by orifices not much larger than pin-holes. The internal surfaces had none of the laminae, or villar projections, but were furnished with fine villous felci, similar to those of the small intestines of the ostrich; with this difference, that in the New Holland bird, they are placed longitudinally, and are more loose and pendulous, looking somewhat like lacerated portions or shreds of the inner coat of the intama.

In the greater number of birds the cecal appendages are too small to serve any purpose, and appear only as useless imitations of the structure described in the graminivorous kinds. Many, that live on a mixed food, and whose stomachs are of an intermediate strength, amongst the larger passeres, the pica of Linnaeus, the gralle, and the affins, have two ceca measuring in length usually about twice or thrice the width of the alimentary canal from which they take their origin. See Plate III. fig. 5, which exhibits these parts in the gallina. Ceca of this size have hardly any cavity, and seldom receive any of the contents of the other intestines; in the small passeres, which feed upon seeds, as the sparrow and finch tribes, the ceca bear a still less proportion to the size of the rest of the alimentary canal; see fig. 6 of Plate III. in which the ceca are represented as they are commonly found in those birds.

In the pigeon the cecal processes are so small, that they escaped the notice of Sew accurate an anatomist as Severinus, who described the pigeon as wanting them altogether. Fig. 7 of Plate III. exhibits their appearance in the dove.

The carnivorous birds of all others have the ceca of the same length; so much so, in many instances, that their existence has been often denied. Fig. 8 of Plate III. is copied from the Memoirs of the Royal Academy of Paris; it shows the cecal dilatation which was found in the bald buzzard (juco hollinser, Linna.) in place of the cecal processes. On the internal side, however, this enlargement was furnished with a villous membrane, by which a pouch was formed on each side.

The coel appears a very remarkable exception to the common structure of the acceptors, which respect to the formation of the ceca, which both in figure and magnitude are similar to those parts in the gallina. It is difficult to account for this singularity, unless it be supposed necessary to receive the indigestible parts of the animal, which this bird swallows entire.

Some of the piscivorous birds, as the heron, &c. have only one cecal process; it is very short, and in the heron terminates in a pointed manner. See Plate III. fig. 9.

There are instances of the cecal appendages being altogether wanting. They have not been found in the confomy, the cormorant, the bittern (ardna fallaria), the parrot, and the wood-pecker.

That portion of the intestinal canal which corresponds to the colon and rectum of mammalia, as already observed, is very short in birds. In its external characters, it resembles the rest of the intestinal canal, of which it appears to be simply the continuation. The internal surface is provided with villi, which however, are not so long and delicate as those of the small intestines. They are rather very minute eminences than villous processes, especially towards the termination of the rectum, at which place they often assume a decided granular appearance. The inner surface of the rectum in the New Holland ostrich, however, presents an exception to this observation; it is covered with fine and truly hairy-like processes; in this bird also the internal coat of the great intima is slightly folded or wrinkled transversely, in a manner somewhat similar to the valvule conniventes of the small intestines of the human subject.

The termination of the rectum in birds is very usually called the cloaca, on account of its receiving, as a common sink or sewer, both the excrements of the intestines and the urine. There is at this place a dilatation of the gut, which is often only a flight and gradual enlargement just within the margin of the anus; but sometimes it swells out suddenly into a pouch or fack. A remarkable example of which occurs in the parrot; see Plate IV. in the Anatomy of Birds. fig. 1 a the rectum, b the pouch.

The cloaca of the bryall has been found large enough to contain an egg. It is of an oval form; it is situated about an inch from the anus, and the rectum again experiences a contraction previous to its termination in the vent. See fig. 2 of Plate IV. in the Anatomy of Birds; a the rectum before it enters the pouch; b the pouch laid open to expose its interior; c, the contraction within the anus.

In the ostrich, this dilatation is of great size; being capable of receiving one's two fists, according to the report both of the anatomists of the French academy, and of Mr. Warren, who published a dissection of this bird, in the Philosophical Transactions, see No. 354. p. 113.

The use which the anal pouch answers is almost too obvious to be mentioned, which is that of a temporary accommodation to the excrements of the bird, by which their ejection is rendered less frequent.

The cloaca is furnished with somewhat larger muscular fibres than the rest of the intima, and is invested with a reflection of cuticle, which in the larger birds is very palpable. Connected with the cloaca, there is a bag, or pouch, which, taking the name of the anatomist who first described it, is called burfa Fabrici.

The purse of Fabricius is usually of an oval or round figure, depressed on the anterior and posterior sides, and thence always appearing empty. It is furnished with a narrow process, or neck, which is most contracted about its middle. Its situation is on the back part of the cloaca, to which it is closely connected, being inclosed in the same reflection of peritoneum which envelops the rectum. When the peritoneum is dissected off, it is found to be a distinct bag or sack, united only to the rectum by means of its neck, which passing obliquely in the coats of the cloaca, opens into the intima by a slit-shaped aperture. The internal coat of the cloaca projects over the opening like a pouch, and performs the office of a valve, readily allowing the contents of the bag to pass out, but standing in the way of any regurgitation from the intima. See Plate IV. of fig. 2, and the purse of Fabricius in the bryall which is of an oblong shape in this bird; e, the slit by which it communicates with the cloaca.

The size of this bag is in general fairly proportioned to that of the bird in which it is found. In the bryall it has been rated to be two inches long; in the goose, it measures about an inch and a quarter in length, and half an inch in breadth; and in the sparrow, it is about a quarter of an inch long, and half as broad.

The external side of the burfa is smooth and equal, but the internal part is thrown into deep rugae. The folds are disposed in an arborecent form, and branch off with great width.
regularly from a slit which is lodged in the neck of the bag. See Plate IV. fig. 3. in which the purse of the goose is delineated, with its cavity laid open, to exhibit the folds upon the inner surface.

When more closely examined, the structure of this part is very curious. Under the peritoneal covering, it is surrounded by a very delicate expansion of muscle, the fibres of which take a transverse direction. The internal tunics of the purse are made of a thin pellicular membrane, and the folds which have been described, consist entirely of glandular bodies, which are too minute to be distinguished with the naked eye. By employing a lens of common magnifying powers, we have discovered them to bear a great resemblance to the gal- tric glands, being, like them, little cylinders, which are perforated at one extremity to give passage to their secreted fluid; indeed, the only difference which appears between them, is, that the glands of the purse are shorter, being so much compressed in some instances, that they are nearly of an annular form. Fig. 4. of Plate IV. exhibits a portion of the purse of the goose, highly magnified; a, a, the glands composing the folds; b, b, the spaces left between the folds, which consist only of the tunics of the purse.

The fluid produced by these glands, and of which the purse always contains a greater or less quantity, appears to differ in no respect from common mucus. The necessity, however, for example a supply of mucus, as the glands of the peritoneum are capable of furnishing, does not seem very plain, especially when it is considered that the purse of Fabriusc is not met with in all birds. Amongst others, the parrot is without it, as appears by fig. 1. of Plate IV. in the Anatomy of Birds; and yet the parrot has a very large cloaca, and might thence be supposed to need this glandular apparatus, even more than many birds, admitting its use to be the secretion of a mucous fluid, to sheath the cloaca against the action of the excrement and urine.

Although the functions of the purse of Fabriusc cannot be flated with certainty, it may be conjectured that they are not unimportant, from the delicacy of its organization, and its being to rarely wanting. There are a number of black points to be seen within the anus of the parrot, which appear like the orifices of mucous glands; may not these supersede the necessity of the purse in this bird?

The excrements of birds have been ascertained by Vaquer- lin and others, to polish an acid. This is increased by fer- mentation, into which excellent matters rapidly tend, and as it proceeds, the acid gives place to ammonium, which is evolved, towards the end of the process, in great abundance. The dung of the pigeons is found to contain an acid of a peculiar kind, which is increased by the mixture of the faces with water. It is from its chemical properties that the dung of pigeons becomes so serviceable as a manure, and that it is employed in the procefs of some manufactures, and for domestic purposes, as cleansing clothes, &c.

Vaquerlin has also analyzed the fixed parts of the excre- ments of fowls, which being compared with those of the food, afforded some very singular and important results.

For this purpose he fed a hen for ten days upon oats, of which she consumed during that time 111,118,843 grains troys weight; these contained

136,509 grains of phospate of lime, 219,548 silica,

359,657.

In the course of these ten days the hen laid four eggs; the shells of which yielded 98,770 grains of phospate of lime, and 453,417 grains of carbonate of lime. The whole quantity of excrement ejected during the ten days contained:

175,529 grains of phospate of lime, 58,494 grains of carbonate of lime, and 185,666 grains of silica. The amount, therefore, of the fixed parts discharged from the sytem during this period were as follows:

274,328 grains of phospate of lime, 511,911 grains of carbonate of lime, 185,666 silica,

Given out 971,482
Taken in 359,657

Surplus 615,425

Hence it appears, that the quantity of solid matter parted

by the sytem during these days, exceeded the quantity taken in by 615,425 grains.

The amount of the silica received was 219,548 grains,
The quantity given out was only 185,666 grains,

Deficient 34,882 grains.

Consequently there disappeared, during ten days, 34,882

grams of silica.

The quantity of phospate of lime taken in was 136,509 grains,
That given out was 274,328 grains,

137,796.

There must have been formed, by digestion in this fowl no less than 137,796 grains of phospate of lime, as well as 511,911 grains of the carbonate of lime. It may thence be presumed, that lime (and perhaps phosphorus) is not a simple substance, but compounded of ingredients which exist in uce, water, and air, which are the only matters that could be introduced into the body of this fowl; as a quantity of silica had disappeared, it might be supposed, that it had contributed to the formation of the additional products; but if so, it must have entered into combination with a great quantity of some other substance. See Annal. de Chim. xxix. 16.

Notwithstanding these experiments were conducted by the ablest chemist of the age, they ought not perhaps to be at- tended to without being repeated under every circumstance which could lead to the detection of any error that might possibly arise.

This is not only necessary on account of the extraordinary nature of the results, which could only be produced by a creative power in the assimilating organs of the animal, but from other analogous experiments yielding results of a contrary kind. Dr. Fordyce, for instance, found that a cer- tain quantity of calcareous matter was required by birds during the period of laying; and if the bird was deprived of this, the shell never was formed, and the bird frequently died from the eggs not coming properly forward. The method he adopted to prove this was simple and satisfactory: he took a number of canary birds, when about to lay; some he inclosed, so that they could have no access to any cal- careous matter; and to others he gave a piece of old mortar, which they swallowed with avidity, and they laid their eggs as usual; whilst, on the other hand, those birds he had not furnished with the mortar were unable to produce eggs, and in several instances died. See Fordyce on Digestion, p. 25 & 26.

Liver.

This viscus is situated about the middle of the common cavity of birds. Its form, as in other animals, is much influenced by the shape of the parts which are immediately ad- jacent. The left side lies on the ramach, the right covers the
the intestines, and the apex of the heart is accommodated in the middle, and wherever the liver comes into contact with these parts, it receives in a degree an impression of their form.

Vie d'Azir, in his great system of anatomy, says, that the liver of birds is divided into only two lobes; and Cuvier has repeated the assertion in his Tableau Élémentaire de l'Histoire Naturelle. The observation, nevertheless, is not in all cases strictly true. In many birds there is a third lobe, situated at the back of the liver, between the right and left lobes: this appears to be analogous to the lobulus epiglottis of the human subject, both from its most usual figure, and from its position. See Plate IV. of the Anatomy of Birds. Fig. 5. represents the liver, &c. of the goose reviewed on the posterior, or reverse side; a the right lobe reaching lower down than the other, and exhibiting impressions corresponding to the convolutions of the intestines; b the left lobe, with two prominent parts, and a depression extending along the lobe between them; c the third, or intermediate lobe. In the common fowl, the left lobe is on the anterior part of it, as deeply as almost to form two lobes on the left side. The French academicians allow three lobes to the liver of the coromorant; they are all very small. A third lobe has been described also in the pigeon by Borrichius, and in the swan by Bartholine. The liver of the gryzib consists of four imperfect lobes.

There is considerable variety in the shape and relative size of the two principal lobes; generally the right lobe much exceeds the other in bulk, and is somewhat longer. This character of the lobes is to be seen in the liver of the goose, Plate IV. fig. 5. but is more remarkable in the coquim, and even still more so in the buffards, in which the right lobe descends to the bottom of the belly; both lobes are short in the eagle, the Indian cock, the parrot, the owl, and many others; and in the eagle the left lobe has the greater bulk.

The two lobes are nearly of equal size in the coromorant kind, and both long-shaped. However much the livers of birds may differ in external forms, the internal structure is the same in all cases, as we have proved by numerous observations. The secretory vessel is produced from the veins of the neighbouring viscera, as in mammalia, and after entering the liver by the depression or fissure on the lower surface, which corresponds to the porta or gate of the human liver, it is distributed throughout the substance of the organ, and terminates in the same manner as the vena portae, i.e. in fine radii, or penicilli towards the surface of the liver.

As there is no muscular septum between the thorax and abdomen of birds, their liver has not the advantage of that mode of connection, which is called in mammalia the coronary ligament: it is however amply supplied by the duplication of peritoneum, which corresponds to the faliform ligament; this process divides the two principal lobes, passing deeply between them; it is connected to the peritoneum, which forms the air cells, in the sides and back part of the abdomen, is incorporated with the pericardium, and joins the sternum and the linea alba on the front part of the abdomen, and then becomes reflected on each side of the common cavity, which is thus divided almost for its whole extent, in the same manner as the mediastinum divides the thorax in mammalia. The extended attachment, which is in this way procured for the liver, renders this viscus more firmly in its situation than it is in other animals, which birds require on account of the rapid and violent motions of their bodies during the act of flying. As the faliform ligament goes on to the fore part of the cavity, the margins which forms the round ligament is necessarily wanting, but the remains of the umbilical vein may be traced running between the duplicature of the peritoneum.

The gall-bag, or reservoir of the secreted fluid of the liver, in almost every instance where it exists, is situated upon the lower surface of the right lobe, somewhat nearer its central than its external edge. It is commonly received into a slight depression of the liver, so that about one-half of the bag is brought into contact with that viscus, nothing being interposed between them but the connecting cellular substance. The surface of attachment is occasionally less extensive; thus in the eagle, buffard, and coromorant, the bag stands out from the liver being only united to it by one end.

The form of this bag is commonly that of an egg, or a globe, or often something between these two figures. In a few instances it is elongated, as in the buffard and coquim; it measured in the latter bird only one inch in diameter, although it is seven inches in length.

The structure of the gall-bag appears to differ in no respect from that described in mammalia; its coats discover no trace of mucular fibres, and its internal surface exhibits the same kind of reticulation or net-work which is found in the gall-bladder of the human subject. See Plate IV. and fig. 5. in the Anatomy of Birds; the letter d indicates the gall-bag of the goose viewed particularly in its natural position; the reticulated structure is visible on the outside, but to bring it more perfectly into view the cavity is exposed by the removal of a portion of the bag.

The bile does not flow into the gall-bag by regurgitation from the common duct, but is conveyed directly thither by means of a particular tube designed for that purpose. This duct arises from the right lobe, passes on the sides of the bag, which is in contact with the liver, then becomes involved in the coats of the cyst, which it perforates about the distance of one-third from the posterior end.

The orifice by which the duct opens into the cavity of the bag, is very small, and is surrounded by a smooth projection of the inner membrane, which added to the obliquity of the duct, affords the effect of a valve, and entirely prevents any return of the fluid upon the liver; for the more the cyst is distended, the more pressure will be laid upon the duct, in its passage.

It would seem that the cysto-hepatic duct is situated nearly in the same way in all birds, where it exists, but the present description is taken from the goose. See Plate IV. and fig. 5. in which e points out the termination of the duct in the gall-bag, upon the papilla above-mentioned, and the course of the duct also is to be indistinctly seen behind the tunics of the cyst.

The ducts which carry the bile to the intestines, are two in number, the hepatic and the cystic. The first arises by two branches, generally from the right and left lobes of the liver, and while within the fissure or porta of the liver, they unite to form the trunk which proceeds to its insertion in the intestine, and usually crosses the duct of the gall-bag in its way thither.

The cystic duct comes forth abruptly from the most posterior part of the gall-bag, which is not prolonged into a neck, as in other animals. The duct makes a turn round the end of the bag, along the side of which it then proceeds so closely applied, that upon a flight examination it might be supposed to commence from that part, or even from the anterior end of the cyst.

The cystic and hepatic ducts never unite to form the ductus communis, as in many animals; but proceed directly to the intestine, into which they always enter separately; sometimes very near each other, and at others removed to a little distance. Two hepatic ducts have been found
found in the Indian coot or *fusaffo*, which also had a distinct insertion in the intestine.

The part of the intestines where the biliary ducts penetrate, is commonly at the conclusion of the first doubling or convolution, which occurs after the origin of the intestine from the stomach; or, in other words, it might be said to be at the termination of the duodenum. The bile duct of the *girich* is very large and enters the intestine near the stomach.

As in mammalia, the passage of the ducts through the coats of the duodenum is somewhat oblique, and they open upon a papilla or prominence of the internal coat, thus gaining the effect of a valve, and preventing the regurgitation of their fluid. In addition to which, the *bylhard* is described as having a fold of the inner coat of the intestine projecting over the orifices of the biliary and pancreatic ducts.

Plate IV. and fig. 5. in the Anatomy of Birds, exhibits the origin, course, and termination of the biliary ducts in the goose; *f* the hepatic duct, formed of two branches in the nature of the liver; *g* the origin of the cystic duct from the end of the bag, appearing internally like a puckered hole; *h* its course behind the hepatic duct, beyond which it terminates in the intestine; *i* the first convolution of the intestine; *k* the portion from which the gizzard has been cut away; *l* the commencement of the second fold of the intestines, or the beginning of the jejunum.

Both the cystic and hepatic ducts of the *gull* become slightly enlarged just at their insertion in the intestine, which is produced not so much from a dilatation of their cavity as a thickening of their coats. The more minute structure and the functions of the bile ducts are in every respect analogous to those of the same parts in other animals. A very curious observation has been made on this subject by Borrichius, which deserves to be mentioned. He opened a pigeon while yet alive, and discovered in the hepatic duct a pulsatory motion, by which it was alternately distended and emptied of its contents, the intervals between each contraction were somewhat longer than they occur between the pyloric and diaphragm of the heart. If this had been related by a less accurate anatomist than Borrichius, one would be led to suspect that a blood-vein had been mistaken for the biliary duct; but he watched the moment that the action of the heart subsided, and still the duct was alternately emptied and distended with a green fluid as before.

The gall-bag is occasionally wanting in birds, and it should be remarked, that this irregularity is not governed by any general rules of structure, as two species which agree in every other respect, are observed to differ in this; nay, according to the French academicians, the gall-bag is not constantly found even amongst the individuals of the same species; thus in dissecting six *dendrolibes* of *Numidia (orden singo*), it was absent in two of them, and the others had it very small. Amongst ten *pintados*, also, they only met with the gall-bag twice, and differing very much both in size and shape; and in these instances where the bag was absent the hepatic duct was found very large.

The species known to be deprived of the gall-bag, are the *girich*, the *parrot*, the *pigeon*, the *bittern*, the *crane*, and the *cock*: in some of these, dilatations of the ducts have been observed which may be supposed to supply in a degree the office of the gall-bag, which appears from this, as well as from other circumstances, to be simply a reservoir for the bile, and not an organ for working any change in the properties of that fluid. Being, therefore, a convenient, rather than a necessary structure, its absence need not be expected to be marked with any clear relation to the other functions of the animal economy.

No experiments have yet been instituted with the design of procuring a chemical analysis of the bile of birds; it is most probable, however, that these would discover nothing peculiar, as in soluble properties such as colour, taste, &c., it perfectly resembles the bile of mammalia.

The Pancreas.

Consists of two distinct glands, for the most part, in birds. Their common situation is between the coils of the first intestines, to which they are very firmly bound by their peritoneal coat; they have a very elongated figure, furnished with decided sides, angles and edges, which are irregularly notched or indented. These ducts mark out imperfectly the original lobules of which the glands are composed. They appear to possess the same internal structure which is described in mammalia, though not so palpably as to be discovered without some pains; to a light observation their substance seems to be a white homogeneous mass, instead of that conglomerate of lobules, cells, blood-veins, and ducts, which really enter into its composition. Each of the glands produces a principal duct, which separately runs in the reflection of peritoneum, into which intestine they are inferred, at a variable distance from each other, in the manner of the two biliary ducts. Their entrance is, with scarce an exception, adjacent to that of the bile ducts, and often so near that one projection of the inferior coat of the intestine serves for the termination of all the ducts.

See Plate IV. in the Anatomy of Birds, in fig. 5. the letters *cm* indicate the two pancreatic glands of the *gull*, a little separated from each other, and their other peritoneal connections, to exhibit more clearly their figure; *m* the ducts from each gently curved in their passage to the intestine. The pancreatic and biliary ducts are at a considerable distance in the *girich* and the *gull*. In the first, as already mentioned, the hepatic duct enters the intestine near the stomach; but the pancreatic duct pusses as usual into the last portion of the duodenum. The pancreatic ducts of the *gull* penetrate the duodenum at its commencement, whilst the biliary precede nearly the common situation. It is not very usual for these ducts to enter the intestine alternately, or for the two pancreatic to pass between the two biliary; this may be observed in the *eagle*, the *heron*, &c.

Considerable varieties have been described in the number, external figure, and magnitude, &c. of the pancreas in different birds. The French academicians have represented it as a single gland, with only one duct in the *girich* and *caffo-voary*. In the latter it was extremely small in proportion to the size of the bird, being only two inches long, and its duct a line and a half in length. In the *eagle* it appeared to be single, although in one instance it sent forth two ducts, and in another three; it was enlarged and round at the head, at which place it was perforated by the hepatic duct in its way to the intestine. They also describe that this gland varies in different individuals of the same species; thus in one *cauffo-voary* they found the pancreas double, and in another single. De Groot in most *fau* found three pancreatic ducts, and also in the *pigeon*, and Bartholin observed only one pancreatic duct in the *peacock*.

The Spleen.

Has been described as occupying different situations by different authors. Thus Cuvier, and other anatomists, have stated its common position to be the middle of the mesentery. The French academicians found it closely adhering to the side of the ventricle, in one species of eagle (*falco chry-soleus*) and in another (*falco loxatilis*), it was met with under the right lobe of the liver; and Severinus mentions the spleen of the *crow* being situated upon the first intestine. In every bird, however, which we have examined with the view of
affecting the situation of the spleen, it has been uniformly discovered beneath the left lobe of the liver, placed a good deal backwards, and on the right side of the zone of gastric glands. Its peritoneal connections to the neighbouring parts are loose and permit it to be displaced, when the other viscera are removed from their situations, which circumstance may have occasioned some difference in the observations made upon the subject. The situation we have described is the most convenient for its being supplied with blood, which it receives from the gastric artery, and is besides consistent with general analogy.

The figure of the spleen is most commonly round; it is, however, in some birds, a little different in form. The most usual deviation is the oval or kidney shape, which has been observed in the corvoraent, the eagle, the pintado, the common fowl, &c. In the fowl it is cylindrical, and in the caymaway it has been likened in figure to a flat fish. In the gull it is much elongated and pointed at both ends, as it is shown in Plate IV. in the Anatomy of Birds, and § 6.

The spleen assumes rather an irregular form in the goose; it is slightly compressed and round on the one side, and flat on the other. The outline presented on either side is triangular, and one of the angles is prolonged as a mammillary process, which is distinguished from the rest of the spleen by a flat cleft or fissure. This is represented in fig. 7, of Plate IV. of the Anatomy of Birds; a the body of the spleen viewed on the flat surface; b the papilla-shaped process; c the entrance of the splenic artery, upon the edge; d the vein penetrating the flat surface.

The texture of the spleen is so much more close and firm in birds than in mammalia, that one might be easily led to suppose its structure was different; but when prepared by being injected with coloured substances, and submitted to examination through a lens, we have discovered, as in mammalia, the splenic artery to terminate in numerous minute branches, and the veins to take their rise from cells. The only difference which exists, is with respect to the magnitude of the cells which are extremely minute; and thence arise the peculiar compactness and density of the spleen of birds.

The structure of this organ being so very similar to that of the spleen in mammalia, it is fair to conclude that their functions are also analogous. The situation of the vices in birds might be confedered, therefore, as affording an objection to that theory, which supposes this organ designed to regulate the quantity of blood employed by the arteries of the stomach during the secretion of the gastric fluid; for, in birds, the spleen receives no supply as occurs in mammalia, by the introduction of food into the stomach, and consequently, cannot affect the distribution of the blood in the collateral arteries, more under the circumstance of a full stomach than an empty one. In order to put the spleen of birds in the same conditions to which it is subject in man and quadrupeds, it should be placed under the crop in the granivorous tribe, or between the ventricle and the ribs in the other kinds.

Although it would be often wrong to determine the uses of an organ in one class of animals, from the circumstances in which it may be placed in another; yet no theory can be considered as well founded, unless it be framed in the contemplation of all the varieties of comparative structure.

Absorbents.

One of the most remarkable and inexplicable circumstances in the anatomy of birds is, that the nutritious fluid of the intestines, or the chyle, is as transparent as the lymph which is taken up from the common interstices, or the surface of the body. The absorbents of the intestines, therefore, do not deserve to be called lachetals, an appellation they have received in man and quadrupeds, in consequence of the opacity and milky appearance of their contents.

The discovery of the lymphatic system in birds may be reckoned amongst the modern improvements in anatomy. Before Mr. Hunter, about the middle of the last century, described the absorvent of the neck, it was generally supposed that the office of these vessels was fulfilled in birds by the minute branches of veins. This opinion was rendered more probable as several able anatomists had fought in vain for those white vessels, and their glands, which are so easily detected in the mecatomy of the smallest quadruped. It was not then known, however, that the lymphatic vessels of the intestines were always pellucid in birds, and unprovided with glands, and accordingly Mr. Hunter's discovery was not generally admitted as decisive on the question, until some years afterwards the whole of the lymphatic system had been described by Mr. Hewson; he employed for this purpose a young and very lean goose, which had been recently fed, and having secured it upon a table, he opened the abdomen whilst the bird was yet alive, and passing a ligature round its mecanteric vessels, as near to the root of the mecantery as possibl, the lymphatics of this part became apparent in a few minutes. The same method also was pursued to expose the absorbents of the neck. A ligature was placed round the jugular vein at the lower part of the neck; and to be more certain of including the lymphatics which are near it, a sufficient quantity of the surrounding substance was included by the ligature. In this way he succeeded in tracing the lymphatic vessels, in more instances than one, after having filed the vessels with quicksilver. He published a description of the absorbents, illustrated by two drawings, in the Philosophical Transactions for the year 1748, and in his Experimental Inquiries into the lymphatic system.

As no accounts or figures of the absorbents of birds have been offered to the public since Mr. Hewson's time, we cannot do better than adopt the description, and copy the representation left to us by that indefatigable anatomist; in doing which, we shall transcribe his own words.

"This system consists in birds, as it does in the human subject, of three parts, viz. the lachetals, the lymphatic vessels, and their common trunk, the thoracic duct. The lachetals indeed, in their strictest sense, are in birds, the lymphatics of the intestines, and like the other lymphatics, carry only a transparent fluid; and instead of one thoracic duct there are two, which go to the two jugular veins. In these circumstances, it would seem, that birds differ from the human subject, so far at least as I may judge from the dissection of a goose, which was the bird I chose as most proper for this inquiry, and from which I took the following description, after previously injecting its lymphatic system with quicksilver.

"The lachetals run from the intestines upon the mecanetic vessels. Those of the duodenum pass by the side of the pancreas, and probably receive its lymphatics: afterwards they get upon the celiac artery. Whilst they are upon this artery they are joined by lymphatics from the liver. Here they form a plexus which surrounds the celiac artery: at this part they receive a lymphatic from the gizzard; and a little farther, another from the lower part of the esophagus (or zone of gastric glands). Having now got to the root of the celiac artery, they are joined by the lymphatics from the glandular renoi, or renal capsules; and near the same place, by the lachetals from the other small intestines, which vessels accompany the
the mesenteric artery. Thosc left mentioned lacoids, before they join those from the duodenum, receive from the rectum a lymphatic, which runs with the blood-veins of that gut. Into this lymphatic some small branches from the kidneys seem to enter, which, coming from those glands upon the mei entered, at last open into its lymphatics. At the root of the coeliac artery, the lymphatics of the lower extremities probably join those from the intestines. The former," he says, "I have not yet traced to their termination, though I have distinctly seen them on the blood-veins of the thigh; and in one subject which I injected, some vessels were filled, contrary to the course of the lymph, from the network near the root of the coeliac artery. These vessels ran behind the cava, and down upon the aorta, near to the origin of the cranial arteries; and I presume they were the trunks of those branches which I had seen in the thigh. At the root of the coeliac artery, and upon the contiguous part of the aorta, a net-work is formed by the lacoids and lymphatics above-described. This network consists of three or four transverse branches, which make a communication between those which are lateral.

In the subject from which this description was taken there were four. From this net-work arise the two thoracic ducts, of which one lies on each side of the spine, and runs up to the lungs obliquely up towards the jugular vein, into which it opens, not indeed into the angle between the jugular and subclavian vein, as in the human subject, but into the inside of the jugular vein, nearly opposite to the angle. The thoracic duct of the left side is joined by a large lymphatic which runs upon the aorta-plugus, and can be traced as far as the lower or glandular part of that canal, from which part, or from the gizzard, it seems to issue. The thoracic ducts are joined by the lymphatics of the neck (and probably by those of the wings), just where they open into the jugular veins.

The lymphatics of the neck generally consist of two pretty large branches on each side of the neck, accompanying the blood-veins. These two branches join near the lower part of the neck; and the trunk is in general as small, if not smaller, than either of the branches. This trunk runs close to the jugular vein, gets on its inside, and then opens into a lymphatic gland. From the opposite side of this gland a lymphatic comes out, which pours the lymph into the jugular vein. On the left side, the whole of this lymphatic joins the thoracic duct of the same side; but, on the right, one part of it goes into the inside of the jugular vein a little above the angle, whilst another joins the thoracic duct, and with that duct, forms a common trunk, which opens into the inside of the jugular vein, a little below the angle which that vein makes with the subclavian.

To this description it may be necessary to add, that though it be taken from one subject, yet in three others of the same species, which I examined carefully, I saw nothing which differed with it. I particularly attended to the number of the thoracic ducts, suspecting that possibly in this subject the two that I had seen might be only a variety, which is a circumstance that, as we are told, has occurred even in the human body. But in three others of this species, which I likewise successfully injected, I still saw two ducts; and therefore I am inclined to believe, that this is the constant number. I likewise carefully attended to the epigastrium coming from the gland on the right side; and in the only two subjects in which the lymphatics of the neck were properly filled, Vol. IV.

I observed that one part of it opened immediately into the vein, and the other joined the thoracic duct. In all the four subjects I evidently saw that the thoracic ducts opened into the inside of the jugular veins.

"This s ystem in birds differs most from that of quadrupeds. I, in the chyle being transparent, the vessels of the thoracic ducts, 3 dly, in there being no visible lymphatic glands, neither in the course of the lacoids, nor in that of the lymphatics of the abdomen, nor near the thoracic ducts; 3 dly, in the several parts of this system in birds being more frequently enlarged, or varicose, than in quadrupeds. In particular, this appears to be the case of the vessels which constitute the network at the root of the coeliac artery, in that subject from which the drawing was taken. The lacoids are frequently enlarged in some places; 3 dly the thoracic ducts; and the lymphatics on each side of the neck are commonly, when taken together, larger than their trunks, which opens into the lymphatic gland. In one subject, when, instead of two lymphatics on the left side, I found only one, that vessel was as large as a crew quill, whilst the lower part of it, which entered the gland, was much smaller."

The figures which explain the foregoing description are to be found in Plate V. of the Anatomy of Birds. Fig. 1, shews the abscesses in their natural situation, with respect to the other parts of the body; A, the neck; B, the clavicle divided near its middle; C, the left subclavian artery; D, D, the jugular veins; E, E, the pulmonary arteries; F, F, the two branches of the trachea; G, G, the lungs; H, the aorta; I, the carotid artery; L, the oesophagus joined to one side; M, M, the renal capsules; N, a small part of the liver fixed to a rib by a thread; O, O, O, ileal vessels; P, the duodenum; Q, the pancreas fixed to a rib by a thread; R, the gizzard. Fig. 2, exhibits the abscesses, and their more immediate connections with the vessels, in outlines: a, the lateral, or more properly lymphatics, which come from the duodenum; b, the lymphatics of the liver, N; c, aplexus formed by the above-mentioned lacoids and lymphatics, which surrounds the coeliac artery, 1; d, a lymphatic from the gizzard; e, a lymphatic from the lower part of the oesophagus; f, f, a network formed by the lymphatics upon the aorta; H, H, the two thoracic ducts; i, i, the trunks of the lymphatics of the neck; k, k, the glands through which the lymphatic vessels of the neck pass; that of the left side is oblong, and could not well be represented in a Figure; l, the thoracic duct of the left side, and the lymphatic vessel of the neck, opening together into the inside of the jugular vein; m, a part of the lymphatic of the right side of the neck, opening into the jugular vein, D; n, the thoracic duct of the right side, joined by a part of the lymphatic vessel of the right side, and then opening into the inside of the jugular vein.

Heart.

This organ occupies the centre of the superior portion of the common cavity of birds. It is placed usually in the line of the body, as in quadrupeds; the heart, however, is inclosed in the slightest degree to the left side in some influences, and in others a little to the right side. The apex of the heart is commonly received between the two chief lobes of the liver, which are hollowed out for its accommodation.

The membranous bag, which contains the heart, is formed like the pericardium of other animals, and is reflected in the common manner upon the origin of the great vessels, and the heart. The pericardium of birds is generally considerably larger than the heart, and especially at the lower part, which
which is often prolonged for some way between the lobes of the liver. It deserves remark, that notwithstanding the great size of the pericardium, the air, which pervades almost all the cavities of birds, is not admitted into this. The Parian anatomists, it is true, observed the pericardium to swell when they inflated the lungs and air-cells of the pinta
du, and thence concluded that the air had admission to the heart, for which they assigned some curious reasons; such as the heart requiring compression and evaporation from its surface. They appear, however, to have been equally in error with respect to the fact and the reasoning; for, in a great number of species we have examined for the purpose, the pericardium was uniformly found to contain a certain quantity of water, and had not the least communication with either the lungs or air-cells. The Parian anatomists must have been led into this mistake by the division of the air-cells around the pericardium.

The heart is of a longer figure in birds than in other ani
def; and the outline of the right side is slightly concave, in consequence of the parietes of the right ventricle being relatively thin. In the girrbz, the heart has been described as nearly round; measuring six inches from the base to the apex, and five inches across.

Birds have, like mammals, four distinct cavities in the heart, which bear the usual proportions in magnitude with respect to each other. The auricles however, and especially the right, are commonly more muscular than in other ani
def; and the left ventricle is always much stronger than the right.

The internal surface of the auricles is very irregular, in consequence of the shape and size of the muscular fasciculi. There is one very strong portion of muscle, which enters into the composition of the auricular part of both cavities, from which the other fasciculi proceed in a regular and radiated manner, at least in the right auricle. See Plate V. in the Anatomy of Birds, fig. 3.

The principal muscular fasciculus of the auricular portion of the cavity passing backwards towards the left auricle; the feu

The blood of the viscera and lower limbs is conveyed into the right auricle by a vein corresponding to the inferior vena
cava of mammals. There is, however, no vein strictly ana
gous to the superior cava, the veins of the right wing and that side of the head and neck, form a distinct trunk, which enters the upper part of the auricle; while those of the opposite side also produce another trunk, which passes along the posterior surface of the left auricle, to which it is closely united, and opens into the right auricle before the inferior cava.

The anatomists of the French academy observed, in most of the birds they dissected, a valvular projection of the inner membrane of the heart, over the entrance of the interior vena cava into the right auricle. This valve resembles in form that of the coronary vein of the human heart, and by its means, the orifice of the cava, which is really very large, is guarded by the appearance of a narrow slit. A similar valve hangs over the entrance of the veins which return the blood of the wings and head to the auricle. See Plate V. in the Anatomy of Birds, fig. 3.

The analogy between the valves of the veins entering the right auricle of birds, and the Eustachian valve of the human heart, is very obvious, and demonstrates, as far as analogous structure can, that the latter serves the purpose of a valve to the vena cava in the human subject.

There are commonly two or three orifices for the coro

nary veins in birds, one is always larger than the rest, and transmits the blood of the principal vein of the heart. They are each provided with a slight projection of the inner membrane, which acts imperfectly as a valve.

The right ventricle is of a triangular figure, and is quite smooth on the internal surface; there being none of those processes of muscle which are called carneae columnae.

The valve, which is placed at the mouth of the right ventricle, is of a peculiar shape and structure in birds. Instead of those thin and membranous folds, which usually surround the orifice of the ventricle, and are moved by means of their connexion with the carneae columnae, and which from their figure in the human subject are called the triangular valves; there is a single projection of the flesh of the heart, of a triangular figure, and nearly as thick as the parietes of the cavity in which it is contained. The triangular valve is joined by its superior edge to the margin of the orifice of the ventricle, and is united by another of its edges to the right side of the cavity almost to the bottom. The third edge is unconnected, except by a small process, which goes off near one of the superior angles to the parietes of the ventricle on the left side. See Plate V. in the Anatomy of Birds, fig. 3.

b the triangular valve, exposed by means of the anterior pa
eries of the right ventricle being cut off, a bristle is passed under the valve from the auricle; d d the external surface of the heart; e the process connecting the floating edge of the valve to the parietes of the ventricle, with a bristle lying under it.

The triangular valve, from its thickness and mincullarity, would seem to operate chiefly by means of the contraction of its own fibres changing its figure, and thus obstructing the return of the blood into the auricle. Barrois discovered a foramen in the septum of the heart of the pigeo

large enough to admit a bristle, by which the two ventricles had a direct communication with each other. See Act. Dan. anni 1. obser. 96.; and we have observed the same foramen at the upper part of the septum of the heart of the go 
in one instance; it was of sufficient size to receive a crow quill. Such a communication does not appear, however, to be an uniform or natural structure, as we failed to disco

ver it in other go 

and in different species of Birds examined for the purpose. Indeed, a ready communication between the ventricles of an adult bird, would be inconsistent with the mode in which the functions of respiration and cir

culation are carried on in this class of animals.

The pulmonary artery is provided with three semicircu

lar valves, as in mammals. It divides also, as usual, into a vesel for each lung, and that of the right side passes under the arch of the descending aorta.

The blood is returned from the lungs by two pulmonary veins, which open very near each other into the upper and posterior part of the left auricle.

The mechanism of the cavities of the left side of the heart more nearly resembles that which exists in mammals.

The sinus, or membranous part of the left auricle, is however very small, and of an oblong shape; and at the place where the pulmonary veins enter into the auricle, there appears to be a projection of the internal membrane, which performers the office of a valve to their orifices.

The valve of the left ventricle is thin and membranous, and resembles to much the mitral valve of the human heart, that the same name might with propriety be given to it.
Bird.

The tendinous cords, however, which are attached to the margins of the valve, are not moved by distinct muscular flescelli, or corona constrictoria, but proceed immediately to be left in the films of the ventricle. The lower part of the cavity is flescellated, although not so remarkably as the internal surface of the ventricle of man or quadrupeds.

The aortic or semicircular valves are to be found at the oriæ of the great arterial trunk from the left ventricle.

The above account of the mechanism of the heart of birds shows that this organ is calculated to exercise its functions precisely in the same manner as in mammals; and that the pulmonary and general circulations are maintained by different chambers of the heart; consequently every particle of blood is expelled to the influence of the air in the lungs, previous to its distribution throughout the system for the purposes of nutrition, excretion, &c. Before the description of the vessels of general circulation is entered upon, it is in order therefore to treat of the organs of respiration, or the lungs.

These bodies are situated on each side of the dorso-lumbar spine, upon the surface of the ribs and intercostal spaces, usually reaching in length from the second rib to the last intercostal space but one, and extending in breadth from the spine to about that part of the ribs, where the processes are bent from one to the other. In the sparrow, the lungs were found to measure ten inches long, and three and an half broad, and were one and an half in thickness.

The lungs of birds never move from their position, as they adhere to the inside of the chest, and are covered over by a strong membrane or aponeurosis.

They are smooth and even on the anterior part; but their figure posteriorly exactly corresponds with that of the parts upon which they are laid. The ribs and intercostal spaces serve as a mould, of which the lungs are the perfect cell, presenting a remarkable formation for each depression between the ribs. These eminences are of course most striking next the spine; and towards the anterior edge of the lungs, which is very thin, they are feebly visible.

The lungs have two coverings; one is somewhat analogous to the pleura, though not exactly similar to it in structure, being more like condenised cellular substance. It closely invests each lung, and appears to be flescellous on some parts of its surface, and to adhere to the parietes of the chest. The other coat is common to both lungs; it is extended from each side of the chest to the dorso-lumbar spine across the anterior surface of the lungs. It is connected in a direct to the fore part of the spine, and extends at this place the trunk of the defending aorta, forming the calcaneal artery to pass through. It has an intimate union with the proper tubes of the lungs except at the openings of the air-cells, and around the entrance of the great trunks of the lungs. The texture of this coat appears to be tendinous; its fibres all run in the transverse direction; and in large birds they are evidently white. This aponeurosis is not equally strong upon every part of the lungs; at the upper part, and especially above where the vessel enter, it is so weak as often to be hardly visible.

In all birds there would appear to be some muscular fibres passing from the side of the chest upon the aponeurosis of the lungs. These are very distinctly to be seen in the larger species, in some of which the muscles of the lungs are of considerable strength. The anatomy of the French academy observed in fowl strong slips of muscle on each side of the body in the aircelle and cafta overy. They arise from the ribs which come from the spine, near their junction with the face which belong to the sternum, and run to the aponeurosis which covered the lungs. M. Poupart discovered eight muscular bands in the lungs of the eagle, and had the appearance of distinct slips, as in birds, aponeurosis, but were spread as a single layer upon each lung.

It is difficult to speak with certainty of the uses of the pulmonary muscles. This fact, in itself, appears to be the tenor of the great muscles, and it is usually, the deviation of it into a flat fibrous which is ordinarily enveed, or deprived. This would naturally produce some dilatation of the lungs; and therefore these muscles might be reckoned amongst the agents of inspiration, although their operation in this way would be very trifling.

The Purifier anatomists attribute several uses to them; they supposed that these muscles had the power of depressing the anterior part of the thorax, in consequence of their attachment to the movable angle of the ribs, and their oblique course upward to the spine. If such be allowed to perform this effect, they must be considered as muscles of expiration.

They imagined also that they could, when it was often, a contraction of the foramina through which the air is admitted into the great air-cells of the thorax or upper part of the body, and thus enabled the bird to maintain a continued dilatation of these cells, in order to diminish the specific gravity of its body during the time it remained on wing; or (what the academicians thought more probable) furnished the bird with a supply of common air to carry with it into the regions of the atmosphere, in which the air would be too thin and light for respiration; in the last conjecture, however, they seem to have forgotten the effect that the temperature of the bird's body would produce in the rarefaction of the air contained in the cells.

When the lungs of birds are stripped of their coverings, they are still found to be a connected, uniform substance, and not reducible to lobes or lobules as in mammalia; they appear, to a superficial view, solid and firm, but if examined more clearly, are seen to be made up of the ramifications of the great blood-veins, the bronchial, and very minute air-cells.

When the bronchial enter the lungs, their chief branches, instead of being regularly and equally distributed, pass directly to certain points upon the surface of the lungs, and there terminate in several foramina, which communicate with the great air-cells of the body; these branches also of the bronchial retain in their structure, almost throughout their extent, some cardinaugous rays. The ramifications of the air-tube which really supply the substance of the lungs, are but branches of those which go to the cells. They are comparatively few, and entirely composed of membrane. This structure accounts for the flabby appearance and solidity of the lung, and explains why birds are able to fill their air-cells with much ease and rapidity.

Although physiologists are not agreed with respect to the uses which these parts have in birds; yet as to the immediately connected with the lungs, it seems most proper to describe them in this place. It is one of the most remarkable and peculiar circumstances in the anatomy of birds, that the atmospheric air has a ready passage to almost every part of the interior of their bodies.

The above according to their situation, may be divided into
The Parilian anatomists describe all these cells as being formed of distinct tunices, so that each is a separate bag, instead of being made by continuous and reflected membranes. They represent the bags to be distinct also from the great membranous partitions of the cavity. See Plate V. in the Anatomy of Birds; fig. 4, is copied from the memoirs of the French academy, and exhibits the air-cells, &c. of the ostrich: a the trachea; b the two bronchi passing to the lungs; e the heart; and dd the liver, seen in the inferior division of the cavity; e the transverse membrane which separates, like the diaphragm, the common cavity into two parts; f the stomach; and ggg the convolutions of the intestine, seen in the lower or abdominal portion of the cavity, bbb the lateral partitions which include the four superior cells; 12345 indicate the different cells; the air-holes are apparent in each, except the inferior or abdominal cells, which cannot be brought into view, as they lie behind the fourth cells.

The air-cells of birds in general do not exactly accord with the description given of the ostrich and cassowary, by the members of the Royal Academy; we shall therefore proceed to give an account of what we have observed on this part of the anatomy of birds in the goose, duck, common fowl, pigeon, &c.; and in order to make this description more intelligible, we shall take the liberty of naming the cells according to their situation with respect to other parts, although some of the terms must be adopted upon the strength of analogy, as the divisions of thorax and abdomen do not with fowlce belong to birds.

The first is the superior thoracic, or jugular air-cell. When it is distended with air, it becomes evident upon the outside of the thorax, between the two branches of the fork; it is large enough in the goose to contain an apple in its anterior part, and posteriorly it extends on each side of the basis of the heart, over the lungs. This cell contains the divisions of the trachea into the bronchiae and the trunks and primary branches of the blood-vessels which supply the wings and head. A great number of membranous septa pass through it in various directions, which serve to connect and keep steady the different vessels, and also divide this cell into several chambers, which, however, have all a free communication with each other. The air is transmitted from the superior part of each lung by two openings which are placed in the posterior chambers of this cell. These chambers do not appear to extend so far upon the lungs in other birds as they do in the goose; it is from this cell that the air passes into the cells of the axils, and under the fork-shaped bone, into the deep seated cells of the neck, and to those about the shoulder.

The next cells may be called the intermediate thoracic. They are generally two in number, one to each side; they lie immediately upon the lungs, and are in a degree covered by the anterior thoracic cell. That of the right side is usually larger than the one on the left; the latter is particularly small in the goose, being almost concealed by the two adjoining cells, and extending under the posterior part of the liver. The cell of the right side is of an oblong square figure, and is prolonged under the termination of the inferior vena cava in the right auricle, as far as the left side of the bulbus glandulosus. The intermediate thoracic cells receive their air through a large foramen, situated upon the inner edge of each lung, just at the basis of the heart. At the upper and inner angle of these cells also there is an opening which appears to lead to some small cells under the pericardium and oesophagus, and to communicate indirectly with the anterior thoracic cell.
The lateral thoracic cells are amongst the largest of the body. They are of a pyramidal figure, their bases being applied to the intermediate thoracic cells, and their point reaching as far down as the bones of the pelvis; they cover the inferior portion of the lungs, and occupy a space between the ribs and the lobes of the liver. They have a very free communication with the branches of the bronchise, at the external edge of the lungs.

As the intermediate thoracic cells are small on the left, and large on the right side, these cells are larger on the left side than on the right: this disproportion is more observable in the goose, and very striking in the duck, in which the two intermediate thoracic cells are nearly of an equal magnitude.

The air-cells, which are found in the lower or abdominal portion of the cavity of birds, are composed of thinner membranes than the others; in some parts they are so tender, that they are ruptured with the slightest touch, from which they become very difficult to examine.

Underneath the lateral thoracic cells, at the very lowest part of the lungs, on each side of the spine, the branches of the bronchise open into the cavity of the abdomen, by which means air is conveyed directly into the two great lateral abdominal cells, and from these it would appear that it passes into the others.

The lateral abdominal cell of the right side is by much the largest in the body; it receives from the last ribs to the anus, and lies over and includes almost all the small intestines, the rectum capsule, and the kidney. It appears in the goose to be divided from the opposite cell by a membrane which passes obliquely from the right side of the anus to the lower part of the gizzard.

The left lateral abdominal cell contains the intestines of that side; it is attached to the margin of the gizzard, under which it is prolonged as far as the lungs, where it is supplied with air, as already mentioned.

The lateral abdominal cells transmit air to the inguinal cells, and to several chambers formed by the most delicate membrane, amongst the intestines. One of these being somewhat stronger than the others, there was an opportunity of observing it more distinctly. It makes a circuit around the right side of the gizzard to which it is attached, and includes the duodenum and pancreas; it might thence receive the name of the duodenal cell.

Interposed between the peritoneum of the belly and the lateral cells there are frequently found a considerable quantity of tender fat; especially in aquatic birds, such as the goose, etc. By this means a soft cushion is provided for the small intestines to press and move upon, thus supplying the use of the omentum, which is a part not met with in birds.

The structure of the air-cells of birds in general does not appear to be the same described in the gurich and caffonare by the academicians. The membranes composing them, instead of being distinct bags, as they relate, resemble rather the pleura or the peritoneum, and like them, seem to produce all the different cavities by the means of reflection. It must be confessed, however, that the membranes of the cells, especially in the abdomen, are very easily separable into different lamina, or layers, which, it might be supposed, could be ultimately resolved into distinct flacks.

It deserves to be mentioned, that each of the air-holes in the surface of the lungs opens obliquely into the air-cells; there being a slight projection of thin membrane over the aperture. The Parifian anatomists ascribed a valvarul effect to this structure, which they supposed of great consequence, as it would serve to continue the diffusion of the air-bags, after they were once inflated. The projection of the membrane over the air-holes does not however appear to be sufficient to cause any obstruction to the regurg of the air from the cells; nor would it seem necessary or convenient to interrupt in the least degree the expulsion of the air contained in the cells.

The membranes of which the air-cells are composed, are reflected into the apertures of the air-holes, and are there perforated by a great number of small foramina, which correspond to the termination of the ramifications of the bronchise, through which the air has a ready passage. When these foramina are brought into view, by detaching of the coverings of the lungs, they give the anterior surface an appearance of being pierced by pins.

The air-cells which are found amongst the muscles and integuments of the external parts of the body, vary in number and magnitude, according to the structure and economy of the bird. In every instance, perhaps, the anterior thoracic or jugular cell is continued along with the vessels and nerves into the axilla, making what may be called an axillary cell, and in most birds others go off from this anteriorly under the pectoral muscle, and backwards under the muscles of the thorax, forming pectoral and sub-pleural cells. In the eagle, buzzard, firk, bird, and other large flying birds, these cells are very large, and in many of these birds there are still larger cells, extending under the integuments of the neck, and passing beneath the skin of the side of the arm, and the back of the shoulder. In the firk we found these cells large enough to admit the finger to pass a considerable way down upon the side and back of the wing. They are also large in the seal and other birds of prey.

Mall birds of flight have a number of cells placed under the lateral muscles of the neck. These are opposite to the bones of the cervical vertebrae, and communicate with one another. It is from the different cells about the axilla and neck, that the bones of the shoulder, the humerus, and the vertebrae, receive the air which they contain.

The inguinal and gluteal cells are filled from the great lateral cells of the abdomen, with which they have a communication, where the blood vessels of the lower extremities pass out of the pelvis. The inguinal and gluteal cells surround the neck of the femur; they are in small birds very small, but in those which are much employed in flight, especially if the thigh bones receive air, they are larger, extending for some way amongst the muscles behind the femur.

Camper observed two air-bags between the gluteal muscles of the genus Patalca, although no air was transmitted into the femur.

The subcutaneous air-cells of the pelican are very large, and were described long ago by Mery, in the early Memoirs of the Academy of Sciences of Paris.

Several means have been employed to prove that the air is permitted to enter the cavity of the bones in birds. The air-cells and the lungs have been inflated from the bones, and injection being thrown into the trachea, was found, after detaching the air-cells, to have passed into the interior of the bones. A still more decisive experiment (although a cruel one) is to cut the humerus across in a living bird, and introduce the extremity of the divided bone into water, in which some soap has been dissolved, when it is perceived that bubbles are produced by the exit of the air from the end of the bone. This expedient not only averteth the eXistence of air in the bone, but shews that there is a motion or circulation of it, which is the effect of the actions of inspiration and expiration.

This subject has been very extensively investigated by Camper.
per, he discovered the communications between the cavities of the bones and the air-cells of the soft parts, and ascertained in a great number of species what bones were filled with air.

The result of both his observations and our own tends to shew, that the bones of birds are supplied with air, according as they are employed in the locomotion of the animal's body. In birds of flight, therefore, almost all the bones are hollow, and receive air; thus in the eagle Camper found the air-cells connected with the thigh bones, those of the pelvis and coxys, all the vertebrae, the femur, clavicles, scapula, and fork-shaped bone, and the bones of the wing. The air was also admitted into the bones of the head from the cavity of the tympanum. We have observed the bones in the breast and fork to want marrow in the same manner as those of the eagle. Most of the bones are hollow in the cold, but the os femoris is filled with marrow. The pigeon kind in general also have no air in their thigh bones, although the crested pigeon has been observed by Camper to possess it.

Birds even of moderate powers of flight, receive some air into the femur and other bones of the trunk, and between the plates of the cranium; and all birds, whose wings are not capable of flight, have the humeri filled with air, with the exception of the woodpigeon, which has been observed to possess marrow in the humerus; but to counterbalance this impediment to the velocity of its motion, it is provided with pectoral muscles of unusual strength.

Those birds which are unable to transport themselves for any distance by the effort of their wings, are deprived of air in the humerus; of these may be included all the frugibous kind, the penguin, the puffin, &c. It is worthy of remark, however, that these frugibous birds, which run with great rapidity, have most of their other bones hollow; Camper discovered the air to pass into the thigh bones and lower jaw of the gryllus, and we have observed that it fills not only these bones, but the femur, the ribs, the vertebrae, and the bones of the pelvis, in both the common pigeon and that from New Holland.

The internal surfaces of those bones which contain air, have been described by Camper as being in some cases lined with perioleum, and in others entirely deprived of it; thus he states the internal part of the femur of the eagle to be cancellated and furnished with a perioleum, upon which several blood-vessels are ramified, and the humerus of the same bird to be a simple osseous tube, without membrane, vessels, or cancelli. It appears to us, however, that the membranes of which the air-cells are composed, are continued in every instance into the interior of the bone, to which they may serve, it is true, the purpose of a perioleum, although in structure they are much more firm and delicate, and when these membranes cease to be vascular, they become dry, and adhere so closely to the surface of the bone, that they are not easily perceived.

The internal parts of the bones of birds which are filled with air consist of cells, like those of other animals; the only difference that can be observed is, that the cancellated structure is less close, and that the tube of the cylindrical bodies, such as the humerus and femur, is larger than usual.

It has been already mentioned, that the bones derive their air in general from those cells which are placed next them amongst the musclos. Some, however, are filled immediately from the lungs, or the large internal air-cells, and the bones of the head and jaws have communications with the Eustachian tube, the cavity of the tympanum, and the sinuses of the nose.

The humerus is supplied with air by the axillary cell, by means of an opening situated at the inner and back part of the head of the bone. See Plate VI. in the Anatomy of Birds; fig. 1., represents the superior half of the humerus of the 
American turkey (meleagræ); a, the air-holes, which lie in the air-plates of the lung, does not open immediately into the cavity of the bone, but contains a number of smaller foramina, that are produced by the cancelli, and have a direct communication with the internal part of the humerus.

The fork-shaped bone is filled from the jugular air-cell, from which also the superior dorso-lateral, and the lowest cervical vertebra, receive some air, through several small holes scattered upon their lateral and anterior parts. The air-holes of the fork is placed upon the side of its fleshy extremity, next the spine. See Plate VI. in the Anatomy of Birds; fig. 2. is the one half of the fork-shaped bone of the fork viewed upon the inside, a, the air-hole.

The clavicle appears to obtain its chief supply of air from the cells which are continued from the jugular air-cells backwards upon the shoulder joint.

The principal foramen is found on the inside of the clavicle, where that bone is connected to the branch of the fork. There are, besides this, some minute holes upon the outside of the clavicle, immediately above the shoulder joint; and on each side of the fleshy extremity of the bone, there is a hole large enough to admit a bristle. See Plate VI. in the Anatomy of Birds. Fig. 5. shows an internal view of the clavicle of the fork; a, the larger air-hole at the joint of the shoulder; b, one of the small foramina which opens into the shell containing a bristle.

The scapula derives air also from the process of the jugular cell behind the joint. It is transmitted through several holes upon the very extremity of the bone. See fig. 4. of Plate VI. of the Anatomy of Birds, a the air-holes.

We have discovered the openings by which the air is conveyed into the femur, to be exceedingly numerous. The principal foramina are situated all along the middle line of the bone, upon the internal surface, which appears reticulated, or made of cancelli. Towards the anterior part there is one hole much larger than any of the rest; and in addition to those of the middle of the bone there are many others passing into the edges of the femur to which the ribs are articulated. All these foramina would appear to communicate with the thoracic cavities. See Plate VI. in the Anatomy of Birds; fig. 5. exhibits the internal surface of the femur of the fork; a, a small foramina in the middle of the bone, b the principal air-hole near the top of the femur, c c c e e many little foramina seen between the femoral ribs which lead to the lateral parts of the bone.

The vertebrae of the back seem to procure air immediately from the lungs; the foramina are numerous, and placed along the sides of the bodies of the vertebrae and at the roots of their transverse processes. The foramina which conduct the air into the cervical vertebrae, occur with as little regularity; the three first have their largest holes upon the sides of their bodies, and in the rest they are to be found within the canal of the transverse processes for lodging the vertebral artery, and along the course of the spinal canal, at least so they have appeared in the fork. See Plate VI. in the Anatomy of Birds. Fig. 6. shews one of the cervical vertebra of that bird, a, the body of the bone, b the spinous processes, c c the transverse processes forming a portion of the vertebral canal, on the sides of which are perceived several foramina leading into the substance of the bone, d the tube behind the body of the vertebra for containing the spinal marrow, exhibiting many small holes upon its internal
The foramina of the cervical vertebrae have communication with the lateral air-cells of the neck.

The air-holes of the anterior ribs are placed upon the ends of these bones, where they are joined to the sternum. They are supplied from the intermediate and lateral thoracic air-cells. See Plate VI., in the Anatomy of Birds, for a detailed description of the openings upon the sternal ribs.

The air-palies into the posterior or vertebral ribs by a number of foramina, situated upon the internal surface of their extremities next the spine. These foramina appear to have from their situation a direct communication with the posterior surface of the lungs. See Plate VI., in the Anatomy of Birds. Fig. 7, is a vertebral rib of the fowl seen upon its inner side, a the process which communicates with the bodies of the dorsal vertebra, b the part joined to the transverse processes, c e the several air-holes.

The air-holes of the bones of the pelvis are so numerous, and occur with so much irregularity, that they do not admit of a particular description. They are all situated upon the internal surface of the bones, and appear to be confined to that space covered by the kidneies, under which the air must infiltrate itself from the abdominal cells, in order to reach them.

The passage of the air into the femur of the eagle and fork is through an opening upon the fore part of the bone, just within the process corresponding to the great trochanter. It is a round depression, under the which the apertures leading to the cavity of the bone are situated. See Plate VI., and fig. 8. of the Anatomy of Birds, which represents the femur of the eagle seen upon the anterior side; a the air hole, b c the cavity of the bone laid open, exhibiting a number of odorous processes, passing in all directions, dividing the bone upon the inside into many irregular cells; there are most numerous towards the extremities of the femur, and are hardly to be seen in the centre; c an artery distributing its branches to the membrane which lines the internal part of the bone. The air-hole of the femur in these birds communicates with the glutinous cells.

In the struthious birds the air-holes of the femur are placed upon the posterior part, and are found upon both the upper and lower portions of the bone. See Plate VI., in the Anatomy of Birds. Fig. 7, shows the posterior surface of the femur of a young ostrich; a a depression on the upper part of the bone, containing a number of air-holes, b the inferior depression with only three foramina.

The air-holes of the lower jaw have been observed in the African and New Holland ostrich, the fork, the bustard and bustard riberis, and the crow; and in all these they consist of two holes situated upon the two extremities of the jaw behind the articulation. See Plate VI., in the Anatomy of Birds. Fig. 10, is the lower jaw of the crow; a b the two air-holes. These foramina communicate by a tube with the cavity of the ear.

The air does not penetrate the bones of the head and jaws in water-fowls.

Having described the distribution of air, which takes place throughout the bodies of birds, it remains to assign an use to this most curious and peculiar circumstance in their anatomy. It has been already stated, that the opinions of anatomists upon the subject are divided. The members of the French academy supposed that the air-cells were necessary to carry on the actions of respiration in birds. Camper thought that air was admitted into the bodies of birds for the purpose of diminishing their gravity in relation to their bulk, and thus facilitate their motion; while Mr. Hunter, the greatest physiologist of this or any other country, felt unwilling to confine the functions of the air-cells to any one purpose, and suspected they might be useful in giving tone and strength to the long limbs.

The observations of the academics appear to us perfectly satisfactory with respect to the connection between the existence of the air-cells, and the office of the lungs. They have related, that during the act of inspiration the sternum was elevated, and the thoracic air-cells distended at the same moment with the lungs, and that when the air was expelled from the lungs and thoracic cells, by the depression of the sternum, one portion of it was expired by the trachea in the usual way, and the rest was urged into the cells of the abdomen, the two parts of the cavity thus becoming alternately enlarged and diminished. In order to effect this, the more certainty the condition of the air-cells during respiration, the academicians subjected several large birds, such as the turkey, goose, etc. to the experiment, of having the parr of the body disconnected without injuring the cells, while the animal was still alive, by which they had an opportunity of observing, that the air-cells below the sternum were rendered tenet during the time the thorax was diminished for expiration, and that as soon as the sternum was raised to increase the capacity of the thorax, the abdominal air-bags become filled. We have made an experiment of a similar kind, with the same result; the abdomen of a living goose was laid open, from which no air proceeded during inspiration, but while the air was discharged from the lungs, it passed into the abdominal cells and through the opening of the belly with so much force as to blow out a candle. The necessity of having the cavity filled with air in birds, obviously arises from the circumstance of the lungs being confined to the posterior part of the thorax, and consequently not capable of suffering any compression from the contraction of the chest, but by the interposition of some other parts.

Many have supposed that the air-cells were not only mechanically subservient to the actions of respiration, but answered another important purpose by collecting a quantity of air, which in repelling the lungs effected a further change upon the blood, thus producing a sort of double respiration; but the free communication which exists between the lungs and the cells, renders it probable that the air on its return passes directly by the air-holes into the branches of the bronches, and, consequently, is never brought into contact with the blood. It would therefore appear that the only part the cells perform in the process of respiration is to supply an elastic medium, by means of which the motion of the sternum and ribs, equally and regularly affect every part of the lungs.

The air-cells making part of the mechanism of the organs of respiration, does not preclude them from answering other purposes in the animal economy. It is plain to demonstration that the bodies of birds lose much of their relative weight by containing air in their cavities, and still more from its admission into the external parts and the bones; the advantages of which in transporting themselves through the air light a medium to the air, or even in locomotion upon a solid surface, are too obvious to be mistaken upon.

The air, while it remains in the body, necessarily acquires the temperature of the living bird, which renders it much lighter even than atmospheric air, and therefore it acts like that retained in the swimming-ladder of fishes.

A comparison of the structure of one bird with another proves that the quantity of air is in proportion to the rapidity and continuance of the animal's motion, all other circumstances being the same; and that the air is distributed always in preference to those members which are most employed in locomotion, as has been already pointed out.
BIRD.

The organs of circulation in birds have obtained but little of the attention of comparative anatomists. The larger branches of the arteries and veins, which lie near some of the viscera, have alone received any description: and that rather from being involved in the account of other parts, than for their own sake. The distribution of the blood vessels of birds, notwithstanding this, is not the least interesting part of their anatomy, as will appear from the ensuing description, which has been taken chiefly from the fowls, geese, ducks, birds, and common fowl, in which it was found to much alike, that it may be premised the same arrangement of the blood vessels prevails with little variety in all birds.

The Arteries

Proceed from a trunk: which arises from the left ventricle of the heart. This trunk is so short, that it is concealed by the other parts on the base of the heart, and is only brought into view after the reflections of the pericardium, and the adjoining vessels are detached by dissection. It is from thence, that as the parts are commonly beheld, there appear to be three great arteries issuing together from the middle of the heart, which are the primary branches into which the aorta is divided. The first branch is to the left side, and after it is sent off, the trunk affects to turn over the aorta, before it gives the branch of the right side: these two branches pass in a curved manner from the heart towards the axillary, in the form of horns, and each is analogous to the arteria innominata of the human subject, so that instead of one, there may be reckoned two arteria innominata in birds. After these branches are parted with, the arterial trunk is continued over the aorta, and on reaching the back part of the heart, becomes the descending aorta.

The arteria innominata first sends off the common trunk of the carotid and vertebral arteries, which before its division gives off one or two small branches; one of these runs down upon the lungs in company with the par vagum, and appears to supply branches to the aponemotysis of the lungs, and the air-cells at the upper part of the thorax; the other branch, after supplying the lymphatic gland of the neck with several small arteries, ascends upon the side of the cephagus, to which, and the inferior larynx, the divisions of the trachea, and to the parts and integuments of the side of the neck, its branches are distributed, anastomosing with the superior cephagoidal and tracheal arteries. This branch is often not sent off until the trunk divides into the vertebral and carotid, in which case it comes from the latter artery. Sometimes in the duck, the suprascapular artery, which is usually derived from the vertebral, is a branch of the common trunk.

The carotid artery, after parting from the vertebral, proceeds to the middle of the neck, and soon disappears; being covered by the muscles of the anterior part of the neck, under which it lies hidden, and in close contact with its fellow of the other side, to very near the head. If, during its course in this situation, it gives any branches, they are too insignificant to be noticed.

The carotid artery emerges from between the muscles of the neck, at about the third or fourth vertebra from the head; and after giving a branch downwards, amongst the lateral muscles of the neck, it runs along the outer edge of the rectus major anteicus musculo, to behind the angle of the jaw, where it divides into its several branches.

An artery first goes off posteriorly, which passes a little forwards under the branch of the os hyoides, and after sending
ing some blood to the muscles of the neck, makes a turn backwards, enters the foramen in the transverse procus of the second vertebra, and terminates by a singular anatomical branch in the vertebral artery.

The next branch is analogous to the internal carotid; it goes forward also under the os hyoides, and passes behind the muscles of the jaws close upon the lower part of the skull, at which place it sends a branch upwards, which appears to penetrate the bones of the outside of the ear, and supply the organ of hearing, feeds a branch into the skull, and another through the articulation of the jaw, to unite with the ophtalmic, and contribute to the plexus at the back of the orbit. The internal carotid then enters an oculose canal, which runs along the bals of the cranium, between the tables of the bone, and at the lower and back part of the orbit, the artery receives a remarkable anastomosing branch of the internal maxillary, which almost equals in size the carotid itself; and these two vessels produce by their union, one, which passes almost directly into the cranium at the actual place for the entrance of the carotid artery. This vessel forms within the skull an anamolism similar to the circle of Willis; but the branch which occupies the place of the baso-
fary artery, is very small, and appears to be furnished entirely from the anamolism of the carotids, and designated only to supply the medulla oblongata and spinal marrow.

The branches of the internal carotid are thickly spred in an arborescent form upon the surfaces of the brain, some on the outside, and others on the internal superficies of the ventricles, and the sulci between the two hemispheres. The carotid also, as usual, sends off the ophtalmic artery, which, besides supplying the eye and the parts in the orbit, produces several anastomoses with the branches of the external carotid, which will be noticed hereafter.

After the trunk of the carotid has parted with the two branches just decribed, it passes for a little way downwards and forwards behind the angle of the jaw, and divides at once into different branches, corresponding to those of the external carotid in mammalia, the first of which might be called the ophosphageal or basophygeal artery. This vessel feeds a branch to the muscles upon the horn of the os hyoides, and then turns downwards and divides into two branches, one to the trachea, and the other to the esophagus, upon the side of which parts they descend to near the thorax, where they anastomose with the tracheal and esophagal branches of the common trunk of the carotid and vertebral arteries.

The external carotid artery dips in between the ptery-
goid muscle, and that which is situated at the back of the lower jaw for opening the mouth; it then passes behind the articular bone, and gives twigs upwards to the muscles of the jaws, and to the plexus at the back of the orbit; upon emerging from behind the articular bone, it lies under the subgastomy procus of the jaw, and feeds an artery upwards, which is distributed to the temporal and masticeter muscles; and proceeding under the triangular tendon that comes from the inferior margin of the orbit to the lower jaw, it divides into two principal branches: one of these passes along the side of the upper jaw, gives a branch upwards to the fore part of the orbit which unites with the ophtalmic artery, and is lost at the top of the head. This branch is very large in birds with combs, as in conjunction with the ophtalmic, it furnishes numerous vessels to the vascular parts. The artery then goes on and supplies branches to the sides of the head before the orbits, and to the integuments and subcutaneous of the upper mandible, inastomosing with the palatine branches of the internal maxillary artery. The second portion of the external maxillary proceeds to the lower jaw, to which, and the lower part of the masticeter muscle, it is distributed. The external maxillary supplies the place of the temporal, labial, angular, nasal, and mental arteries of mammalia.

The lingual, or posterior palatine artery is a little branch of the external carotid, which is sent off posteriorly opposite to the external maxillary artery. Its branches are exalted upon the back part of the fauces, the muscles for moving the upper jaw, and posterior nares.

The lingual, or sub-maxillary artery passes under the muscles which connect the os hyoides to the lower jaw, and close upon the back of the membrane of the lower part of the mouth, it sends a branch to the esophagus and trachea, supplies the muscles of the os hyoides, the tongue, the lower surface of the mouth, and furnishes the artery which enters the subcutaneous of the lower jaw.

Just at the origin of the sub maxillary artery, there is another little branch of the carotid, which is lost upon the muscles of the os hyoides.

The internal maxillary artery is, as usual, the continuation of the trunk of the external carotid; it runs forwards between the pterygoid muscles, and the lining of the mouth, upon the side of the long muscle for moving the upper jaw, and divides into two principal branches; one of them proceeds under the tendon of the long muscle to get upon the palate, where it forms two branches, of which one runs along the external side of the palate, between the membrane and the bone of the mandible to the extremity of the bill, where it becomes united to the same branch of the opposite side, as also to the middle artery of the palate. The other branch lies also superficially under the membrane which lines the mouth. It passes onwards to meet its corresponding vessel of the opposite side with which it becomes actually incorporated, and by their union a single artery is generated, which runs along the middle line of the palate to the end of the mandible, where it unites with the lateral branches as already mentioned. At the junction of the vessel of each side to form the middle palatine artery, two branches go off, which are lost upon the lining of the mouth, and the interior of the organ of smell.

The other branch of the internal maxillary artery is reflected upwards towards the orbit, below which it divides and unites again forming a triangle, through which the vein passes; at this place it produces a remarkable plexus of vessels, like the rete mirabile of the carotid artery of quadrupeds, which is increased by branches from the ophtalmic and the palatine arteries, and from which the back part of the organ of smell receives its supply of blood.

The internal maxillary artery then runs directly backwards below the orbit, passes between the radiated or fan-shaped muscle which moves the upper jaw, and the pterygoid process; and turning inwards round the basis of the cranium becomes incorporated with the internal carotid artery just as it enters the boney canal, which conducts it to the brain.

The vertebral artery, soon after it parts from the carotid, sends off a branch backwards, which passes over the neck of the scapula and is lost among the muscles on the posterior part of the shoulder, inastomosing with the articular and other arteries about the joint; this branch might be called the supra-vertebral. In the duck we have observed it forms the turn over the scapula to form an artery upwards along the muscles of the neck.

The trunk of the vertebral artery proceeds obliquely upwards, and having entered the carotid in the transverse processes of the third cervical vertebra, gives off a large branch downwards, which is distributed to the vertebrae, and to the spinal canal in the manner of the intercostal arteries, with which it anastomoses upon arriving in the index.
The remainder of the vertebral artery is continued upwards in the canal formed in the transverse processes of the cervical vertebrae, diminishing gradually in consequence of branches it sends off between each vertebra to the spinal marrow and the muscles of the neck. Near the head, the artery is found considerably reduced; and within the last foramen in the transverse processes, terminates entirely by insinuation with the reflected branch of the carotid, as before noticed.

The extraordinary anamolies and theplexuses which are to be observed in the arteries of the head in birds are not easily accounted for. It seems possible that they may be required in consequence of the great length of the neck in these animals; it being well known that frequent communication amongst the vessels, although it diminishes the impetus of the circulation, infuses a free and uninterrupted motion of the blood.

After the common trunk of the carotid and vertebral is detached from the artery innominate, this vessel may assume the name of the subclavian. While passing under the clavicle, it sends off some important branches; the first might be called a **piral artery**, it proceeds upwards upon the internal surface of the pectoralis major muscle, which it supplies; and then dividing into two branches, one passes over the anterior edge of the clavicle, and under the pectorals major, between which and the sternum it runs, detaching its branches to the muscle; the other sends first along the under side of the clavicle a branch which is again subdivided and distributed to the outside of the shoulder joint and to the deltoid muscles, in which it invests with the articular artery. The vessel then passes between the clavicle and the fork-shaped bone, and on a ligament which connects the head of the clavicle to that of the scapula, and divides its branches upon the upper part of the shoulder joint forming anamolies with the neighbouring arteries.

The next branch of the subclavian is the **humeral artery;** it arises from the upper side of the vessel, and makes a flight curve to reach its situation on the inside of the arm, in order to dispense its branches in the manner hereafter described.

The **interomary artery** is given off just as the subclavian leaves the chest. It divides into three branches, one ramifies upon the inner surface of the sternum; another upon the internal ribs, and the intercostal muscles; and the third runs along the anterior extremities of the vertebral ribs, supplying the intercostal muscles, &c.

The peculiarugary of the arteries of the superior extremity in birds, consists in the great magnitude of the vessels which supply the pectoral muscles; these, instead of being inconsiderable branches of the axillary artery, are the continuations of the trunk of the subclavian, of which the humeral is only a branch.

The great **pectoral or thoracic artery** passes out of the chest over the first ribs, and close to the sternum, and immediately divides into two branches. One of them ramifies in the superior part of the pectoralis major, and the other is exhausted in the lower part of the muscle, and sends off a branch analogous to the long thoracic artery of mammalia.

The **humeral artery,** while within the axilla, gives a small branch backwards to the muscles, under the scapula, and upon reaching the inside of the arm produces an artery, that soon divides into the articular and the profunda humeri. The **articular artery** passes round the head of the humerus, underneath the extensors; its branches penetrate the deltoid muscle, and anamolies with the other small arteries around the joint.

The **profunda humeri** as usual turns under the extensor muscles, to reach the back of the bone, at which place, in birds, it separates into two branches, of which one descends upon the inside, and the other upon the outside of the circulation of the humerus with the radius and ulna, and there insinuates with the recurrent branches of the arteries of the fore arm.

After the humeral artery has bent off the profunda, it descends along the inner edge of the biceps muscle, detaching some branches to the neighbouring parts; upon arriving at the fold of the wing it divides into two branches, one of these is analogous to the ulnar artery, and the other from its position derives to be called rather the interosseous than the radial artery.

At the place where the humeral produces the two arteries of the fore arm a small branch is bent off, which is lost upon the fore part of the joint, and it anamolies with the recurrent of the ulnar, and the profunda humeri.

The **ulnar artery** is the principal division of the humeral; it proceeds superficially over the muscles which are analogous to the pronator, lends a large recurrent branch under the flexor humeri to the back of the joint upon which it ramifies and forges anamolies with the profunda humeri. The artery then proceeds along the inner edge of the ulnar muscles, to which it distributes branches. It is afterwards seen passing over the carpal bone of the ulnar side, and under the annular ligament, at which place it bends off some branches which spread upon the joint and indent with similar ones of the interosseous artery. Very soon after the ulnar artery gets upon the metacarpus it dips in between the bones and re-appears upon the opposite side lying under the roots of the quills, to each of which it lends an artery; it prefers this situation to the end of the metacarpal bones, where it passes between the fly analogous to the little finger and the principal or fore finger, and pursues its course along the edge of the latter, to the extremity of the wing, supplying each of the true quills with an artery and fending at each joint of the wing, a crofs branch to communicate with the anamolies branches on the opposite side.

The **interosseous artery** detaches first a branch of some size to the membrane which is spread in the fold of the wing, upon which it forms several ramifications. After this the artery dips down behind the pronator muscles to get into the space between the ulna and radius. It here gives a branch backwards to communicate with the others about the joint, and proceeds in the interosseous space as far as the carpal joint, during which course they become much diminished from giving off several branches which are distributed to the integuments and the quills placed upon the outside of the ulna. The remainder of the interosseous artery is expended in small branches upon the back of the carpal joint, the ballast quills, and along the radial edge of the metacarpus and bones of the fore finger, where it forms communications with the crofs branches of the ulnar artery already mentioned.

From this description it will be perceived, that no artery exists in birds strictly analogous to the radial; that there are no palmar arches; and that the fize of the interosseous artery, and the course of the ulnar along the outside of the metacarpus are peculiarities which arise from the necessity of affording a large supply of blood to the quills during their growth.

The **defending aorta** makes a curve round the right auricle in order to get upon the posterior surface of the heart, after which its course is close along the spine, in which situation it is bound down by cellular sub stance, and the long membrane or aponurosis, which covers the lungs on their anterior part. The first branches which this vesse appears to send off are **branchial arteries**; they arise from the fore part of the aorta just when it arrives upon the spine; and having entered
entered the lungs, their ramifications accompany those of the pulmonary arteries. They appear also to send branches to the spaces, and the spaces between the ribs.

The _arteriae intercostales_ do not take their origin from the aorta in mammals and regular branches as in mammalia, but could originally be of but few vessels, which are multiplied by many ramifications with each other, and with the arteries which come out of the spinal canal. An arterial plexus is thus formed round the heads of the ribs, from which a vessel is sent to each of the intercostal spaces. Many of these branches, besides supplying the intercostal muscles and ribs, are continued into the muscles upon the outside of the body, and the integuments. The anatomical of the intercostal arteries round the ribs is very similar to the plexus which is produced by the great sympathetic nerve in the same situation.

The aorta produces no branch which deserves the name of the _phrenic_ artery, as birds do not possess that muscular septum of the body, to which the artery of this name is distributed in other animals.

The _celiac artery_ is a very large single trunk, and arises from the left part of the aorta, even higher than the zone of gastric glands. It descends obliquely for a short way and then gives off a branch which soon divides into two or three others, that are spread upon the lower parts of the esophagus, and the side of the zone of gastric glands, uniting with the other arteries of the esophagus above, and extending downwards upon the posterior side of the ventricle, and anastomosing with the anterior gastric artery. The trunk of the celiac now divides into two very large branches, which from their distribution we have chosen to call the posterior and the anterior gastric arteries.

The _posterior gastric artery_, almost as soon as it is formed, detaches the _esophageal_ artery; and very soon after, it furnishes from the posterior side of the vessel, the _left hepatic artery_. This branch proceeds to the right side of the liver, which it enters on the side of the hepatic duct; after having divided into two or three minute arteries on its way to the liver, it supplies the hepatic duct with a branch which accompanies the duct to the intestine, and is there lost. The posterior gastric artery then runs down upon the back of the gizzard, and opposite to the origin of the first intestine it sends off an artery which proceeds directly to one of the oviduct, upon which and the side of the neck to which it is expanded, filling at the end of the excreta, with branches of the mesenteric artery, which are distributed to the adjacent portion of the small intestine. The posterior gastric then furnishes a large vessel which runs upon the gizzard and divides into two chief branches, which penetrate the substance of the digastric muscles, in which they are lost.

The next branch of the posterior gastric artery is the _pancreatic_. It runs between the two pancrea, and, dividing branches to each, and to the duodenum. After this, the trunk of the posterior gastric artery divides into two other branches which furnish twigs to the mucous partitions of the duodenum, and run along the margins of the upper and lower portions of the digastric muscles, supplying them with numerous twigs, and anastomosing with the ramifications of the other gastric arteries.

The _anterior gastric artery_ descends to the angle formed by the bulbus glaecicoliis and the gizzard, and from that point, off a small branch which spreads upon the zone of gastric glands, and moulcules with the first ramifications of the esophagus. Immediately afterwards it sends a large artery, which runs round the superior margin of the digastric muscle, in which it furnishes with many twigs, and communicates freely with the corresponding branch of the posterior gastric artery.

Three small _hepatic arteries_ take their origin from this branch of the anterior gastric, just as it passes over the highest part of the margin of the gizzard; these vessels enter the lirate in the left lobe of the liver. The anterior gastric artery now proceeds along the front part of the gizzard, sending one or two branches into the molecular substance, and near the tendon it terminates in two large vessels, one of which is distributed upon the left side of the digastric muscle and the other passes between the tendon and then divides into two small vessels, which produce several branches that disappear in the substance of the gizzard, and between the digastric muscles and the parietes of the ventricle, anastomosing with the vessels of the posterior side.

The _superior mesenteric artery_ takes its origin from the front part of the aorta a little below the celiac, and proceeds for some way without detaching any branches; after which it experiences the same kind of division and subdivision that takes place in mammalia; and the numerous arteries which are thus ultimately produced are sent upon the small intestines. One of the first and largest branches of the superior mesenteric, however, is allotted to supply one of the ceca, and establish a communication with the inferior mesenteric, and gastric arteries. This branch, soon after it leaves the trunk of the superior mesenteric, divides into two. One descends upon the rectum, where it meets with the inferior mesenteric artery, with which it produces a very remarkable anastomosis, similar to the mesenteric arch in the human subject: this united artery supplies the rectum and origin of the ceca. The second portion of this branch of the superior mesenteric, runs in the space between the last part of the small intestine, and the excreta of one side, sending numerous branches to each, and at the end of the ceca, communicates in a palatable manner with another branch of the superior mesenteric, which runs upon the adjoining part of the small intestine.

A branch arises from the anterior part of the aorta, just below the lungs; it is designed for the nutrition of the organs of generation, and except in the female for propagation, is so small as to be discovered with difficulty; but when the chicks become enlarged, it is considerably increased in size in the male bird, and much more so in the female, when the ovary and oviduct are developed for producing eggs. It nearly equals the superior mesenteric artery during the period of laying, in which flat we shall describe it. It is a single artery like the celiac and the mesenteric, proceeds at a right angle from the aorta, and soon teads off a branch which goes into the kidney of the left side, to which it gives a large twig, and farther emerging from the kidney, it runs in the membrane of the oviduct, upon which it is distributed. After this branch is detached, the artery projects a little further forwards into the cavity and divides into two branches. One of these goes to the ovary, in which it remains, and furnishes an artery of the same size to each of the tubes containing the ovaries. The other is distributed in numerous branches to the membranes and superior parts of the oviduct, and communicates with other arteries of the oviduct. It deserves to be remarked that this and all the other arteries which are furnished to the oviduct, have a tortuous and winding course, in the same manner as the vessels of the urogenital subject.

There are no regular eminent arteries in birds; the kidneys derive their blood from various sources, which will be pointed out as they occur.

The inferior extremity is supplied with two arteries, which have a separate origin from the aorta. One corresponds with the _f. mes. artery_, and the other deserves the name of _funicular artery_.

3 G 2
The femoral artery is a small trunk which takes its origin from the side of the aorta, opposite to the notch in the bones of the pelvis immediately under the left rib. This notch is formed into a round hole in the recent subject, by a ligament which is extended from it to the rib; and it is through this hole that the femoral artery makes its exit from the pelvis; just before it passes out upon the thigh, it sends off a long branch which runs backwards the whole length of the margin of the pelvis, dispensing arteries to the abdominal muscles on one side, and the obturator internus on the other. This branch also supplies a branch to the oviduct. The femoral artery, immediately after leaving the pelvis, separates into two branches; one goes upwards and outwards, ramifying amongst the muscles in that situation; the other turns downwards, and is distributed to the flexors of the limb, and round the joint, and sends an artery to the edge of the vastus internus, which can be traced as far as the knee. The kidneys appear to derive some irregular inconsiderable branches from the femoral artery while it is within the pelvis.

The iliacic artery is the principal trunk of the lower extremity, exceeding very much in size the femoral. When it is produced by the aorta, it appears to be the continuation of that trunk; the remaining part of the aorta becomes so much and so suddenly diminished, and seems as if were to proceed as a branch from the back part of the vessel.

The iliacic artery, while in the pelvis, is concealed by the kidneys, in which situation it gives a branch from its lower side, which divides into three others that are distributed to the substance of the kidneys: one of these on the left side is continued out of the kidney to be lost upon the ovulate. The artery leaves the pelvis by the ischiadic foramen, in company with the great nerve; while within the foramen, it gives a branch obliquely downwards under the biceps to the muscles lying on the pelvis; and as it passes over the adductor, it sends off another along the lower edge of that muscle, which is chiefly lost in the femoral branch. It then detaches several small branches to the muscles on the outer and fore part of the thigh, some of which anastomose round the joint with the branches of the femoral artery. Just as the ischiadic arrives in the ham, it furnishes a very large branch downwards, which divides into two; one goes under the gastrocnemius, to which and the deep seated flexors its branches are distributed as far as the heel; the other is analogous to the peroneal artery; it goes to the outside of the leg, supplies the peroneal muscles posteriorly, and passes along the outer edge of the flexors of the toes to the heel, above which, and behind the flexor tendons, it divides, running on each side of the heel, and forms several articular arteries around the joint, and communicating with the other branch, and with the anterior tibial, and the metatarsal branch of the plantar artery.

The articular arteries go off next from the artery in the ham; the two principal ones are deep seated. One proceeds under the vastus internus to the external part of the joint; the other is large, and situated upon the tibia. It forms two vessels, one is the true articular artery, and spreads upon the ligaments of the joint, the other is distributed in the substance of the flexor of the heel, which is placed upon the inside and fore part of the leg, and comes out upon the edge of this muscle to be lost in the integuments.

The posterior tibial artery is extremely small; it only supplies muscular branches to the internal head of the gastrocnemius, and some of the flexors of the toes; it is lost on the inside of the heel in anaastomoses with the peroneal artery, and other small superficial branches.

The trunk of the artery of the leg now gets upon the posterior surface of the tibia, and sends off through the deficient left between the tibia and fibula at the superior part, a branch, which is distributed to all the muscles upon the fore part of the leg. The artery then creeps along the back of the bones for some way, and passing between them above, where the fibula is anchoylofed with the tibia, it re-appears on the anterior part of the leg in the situation of the anterior tibial artery; at this place it detaches some very small branches, which frequently divide and unite again, to produce a most singular reticulation or plexus of vessels, which closely adheres to the trunk of the artery, and is continued with it as far as the articulation of the tibia with the metatarsal bone, where it disappears without seeming to answer any useful design. This plexus resembles in appearance exactly the division of the arteries of the extremities, which has been described by Mr. Carlile in the cardigrade quadrupeds, but differs from it in this circumstance, that the trunk of the artery is preferred behind it, without suffering any material diminution of its size.

The anterior tibial artery furnishes no branch of any importance during the time it is proceeding along the fore part of the leg. It passes under the strong ligament which binds down the tendons of the anterior muscles of the leg, and over the fore part of the joint on the inside of the tendon of the tibialis anticus; at which place it distributes some branches which inculcate with the other arteries round the joint; it then pursues its course in the groove along the anterior surface of the metatarsal bone, and covered by the tendon of the flexor digitorum. On coming near the foot, it sends off an artery, which divides, behind the joint of the internal toe, into two branches; one goes between the internal and middle toes, ramifies upon both their joints, and unites with the artery in the fole of the foot; the other is distributed between the internal toe and the pollux or toe, which occupies the place of the great toe; the main artery now passes to the fole of the foot through a hole in the metatarsal bone left for the purpose, when the original parts of this bone were united by osification. In this situation the artery might receive the name of the planter. It has scarcely passed through the bone, when it divides into six branches; three of these are distributed to the tendons and ligaments, &c. on the outside of the foot and the back of the metatarsus, anastomosing with the descending branches of the peroneal artery; the fourth branch supplies the pollex, and also sends a branch upon the metatarsus. The remaining branches are designed for the three principal toes; one dips in between the internal and middle toe, unites with the anterior branch of the metatarsal artery, and is distributed to the sides of these toes as far as their extremity. The other branches, divide between the external and middle toe, into two branches, which run upon the opposite side of each of these toes to the end.

When the feet are webbed, the digital arteries send off numerous branches, which ramifying in the membrane between the toes, establish a communication with each other. The present description has been taken from birds which posses three principal toes, and the back toe, or pollux; but no material difference can be expected in those with a greater number of toes.

After the trunk of the aorta has detached the ischiadic arteries, it is continued along the spine, sending small branches analogous to the lumbar arteries, one of which ascends upon the rectum, supplies the place of the inferior mesenteric, and unites with the superior mesenteric, as already mentioned. The aorta separates above the coxal vertebra into three branches; two of these proceed
B I R D.

terly, and are distributed to the neighbouring parts, and to the kidneys and oviduct; the third branch descends to the very point of the tail, upon the urocles and quills of which its branches are exhausted.

The arterial system of birds differs from that of other animals chiefly in the frequent anastomoses, which exist more especially amongst the arteries of the head and the virena. Similar communications occur between the veins, which are even in some instances more singular and unaccountable, as will be perceived by the following description, which has been taken principally from the goose, duck, and common foul.

V i e n s.

The venous system returns the blood to the heart by means of three trunks; two of these, for the convenience of description, we shall call the abdominal veins, although they do not correspond in every respect with the veins of this name in mammalia; the other trunk is analogous to the inferior vena cava.

The abdominal veins is composed of the jugular and vertebral, and the veins which belong to the inferior extremity or wing.

The vertebral vein is lodged in the same canal with the vertebral artery; it anastomoses between the vertebrae with the veins upon the sheath of the medulla spinalis which are the continuation of the maxillae of the brain; in conjunction with these, therefore, the vertebral vein may be considered as answering the purpose of the internal jugular of mammalia. It appears also to form at the base of the cranium a free communication with the jugular vein, and to receive by occasional branches, blood from the muscles of the neck.

The jugular vein is a single trunk in birds, and does not admit of the distinction into external and internal; it proceeds superficially along the side of the neck in company with the par vagum nerve. The vein of the right side exceeds the other in size; it is often twice as large. The jugular vein receives several lateral branches from the muscles and integuments of the neck, the esophagus, &c.; one of those near the head is much larger than the rest; it lies deep amongst the muscles, and appears to communicate with the vertebral vein. There is a branch of the jugular which goes amongst the muscles of the tongue and of the os hyoideum, and another for the muscles within the jaws and the integuments in the back of the mouth; these might be called the lingual and submaxillary veins.

The two jugular veins form a most remarkable communication with each other immediately below the cranium, by means of a cleft branch, generally of an equal size with the trunks themselves. From each side of the arch thus formed there issues a large vessel, which is made up of the veins of the external part of the head; one of these passes round the articular bone, and apparently penetrates the joint of that bone with the lower jaw; it appears in several branches upon the side of the cheek, and spreading from the ear, in the manner of the portio dura nerve of the human subject, and contributes to form a plexus of veins below the posterior part of the orbit, similar to the arterial plexus already described in that situation. The principal branch of the veins of the head passes obliquely round the inter-articular bone, and below the orbit divides into several larger vessels; one of which belongs to the back part of the palate; another ascends in the orbit, and mates with the ophthalmic vein; and a third is distributed to the interior of the organ of smell, the palate, and the external parts of the upper and lower jaws. These branches produce plexuses along the back of the orbit and the external edge of the palate, which correspond to those of the arteries before described.

In all the subjects we dissected for the veins we failed to discover any direct communication between the jugular vein and the maxillae of the brain; and in every instance the external veins of the head appeared to be sufficiently large of themselves to produce the trunk of the jugular. It may therefore be presumed, that if any branch analogous to the internal jugular vein passes through the posterior foramen lacerum, it is very inconsiderable, and incapable of transmitting the blood of the brain.

The finder of the brain seem to discharge their contents principally into some veins, which lie in the membrane forming the sheath of the spinal canal, and thence appear to dispose of their blood gradually, as they descend in the neck, by means of lateral communication with the vertebral veins. The maxillae, which immediately open into the spinal veins, are situated upon the back of the cerebellum, and produce by anastomoses with each other, with the larger longitudinal sinus, and with others along the sides of the brain, an union of vessels, of a diamond shape.

The maxillae of the brain in birds generally are irregular in their form, and confluent with their parts, and not only the veins on the back of the cerebellum, but the spinal veins appear to like extravasation, that accurate and repeated observations are necessary to discover them to be real vesels.

The principal maxillae, besides those upon the cerebellum, are the superior longitudinal, and one which runs along the lower edge of each hemisphere of the cerebrum; there appears to be also one upon the side of the cerebellum, corresponding to the lateral maxillae. All these maxillae communicate with each other on the back of the cerebellum as already mentioned. The superior longitudinal maxilla is continued at its anterior part under the frontal and nasal bones, and anastomoses with the opthalmic and nasoal maxillae. There are other maxillae in the several duplicatures of the dura mater, which are too small to be easily trace, or to deserve much regard.

The veins of the wing, or superior extremity, have a less curious distribution than those of the head. The branches which are derived from the parts within the chest, the muscles about the scapula, and the pectoral muscles, accompany the arteries of the same parts, so regularly that their course does not require description.

The vein lies considerably lower in the axilla than the artery, but still continues to receive corresponding branches. The trunk of the vein descends in the course of the humeral artery, but more superficially; in this situation it may be called the biceps, or more properly the humeral vein. There is no vein in birds which deserves the name of the cephalic; there are branches of the humeral vein, accompanying the articular and profunda arteries, and at the middle of the humerus, a large branch of the vein enters the bone; there are also two very small branches which lie in close contact with the humeral artery, which they accompany nearly its whole length.

The principal vein of the wing divides into two, opposite to the joint of the humerus with the forearm. One of these branches belongs to the sides of the radius; it receives blood from the muscles and skin on the upper part of the forearm, but its chief vessels lie between the integuments of the fold of the wing. The other branch of the humeral vein crosses the fore arm, just below the articulation, in company with the nerve, and running along the lateral edge of the ulna, receives a branch from between the bights of each quill, is continued along the ligament which sustains the rest of the
the quills to the extremity of the wing, receiving many veins of the joints from the opposite side of the fingers.

Besides these large superficial veins of the fore arm, there appears to be one, and sometimes two, small accompanying veins to the ulnar and interdigital arteries.

The inferior vena cava, before it enters the auricle, receives as usual the hepatic veins; these are numerous, and open into the cava, as if they passed behind the liver, or more frequently within the substance of that viscus in that back part. We have reckoned in the cæcum two large and two small hepatic veins from the right lobe, and one large branch from the left lobe, besides six minute veins, which came indifferently from both lobes.

The trunk of the vena cava is very short in the abdomen; it separates into two great branches analogous to the primary iliac veins, opposite to the renal capsules; these turn to each side, and experience a very singular distribution. On coming near the edge of the pelvis each of these two veins forms two branches; one of which collects the blood of the lower extremity, as hereafter described; the other passes straight downwards unimpeded in the substance of the kidney, and admits the several emunctory veins, which are very large, and are seen to pass for some way obliquely in the kidney, before their termination. The descending branch of the iliac also receives the ovarian veins, and when arrived at the lower end of the kidney, divides into three branches; one transmits the blood of the muscles of the tail and parts adjacent; another accompanies the ureter to the seive of the rectum, and is distributed about the anus and parts of generation, unifying to the haemorrhoidal veins; the third passes towards the middle line between the kidneys, and there unites with the corresponding branch of the opposite side. The vessel which is in this manner produced, receives all the blood of the rectum from the anus to the origin of the cæcum, anastomosing below with the branches of the haemorrhoidal veins; and at the upper part of the rectum, it becomes continuous with the trunk of the veins of the small intestines, forming the most remarkable anastomosis in the body, both on account of its consequences and the size of the vessels by which it is effected. By means of this communication, the blood of the vena cava, and the external parts of the body, flows almost indifferently into the vena cava and vena portae; for the anastomosing vessels are sufficiently large to admit the ready passage of a considerable column of blood in proportion to the whole mass which circulates in the body of the bird: for instance, in the goose, the communicating veins of the pelvis are equal in size to a goose quill, and in the ostrich and eaffowary they are as thick as a finger. The advantage which appears to result from this remarkable union of vessels, is the prevention of congestion, or the overlapping either the heart or liver with blood, as the one organ has the power of relieving the other. It would seem from this, as well as several other provisions of the same kind, that the circulation would be more liable to obstruction in birds than other animals. It is difficult to say, however, to what cause such an effect ought to be ascribed. Is it from the compression sustained by the heart and other visceræ, by means of the air-cells during respiration? Or, is the mode of progression by flight capable of impeding the motion of the blood?

The anastomosis of the pelvic veins, in being the means of conveying common venous blood into the liver, goes to prove, that the blood of the vena portæ does not require any peculiar preparation by circulation in the spleen or other visceræ, which has been conceived as necessary by some physiologists to fit it for the secretion of bile.

The vena portæ belongs almost exclusively to the right or principal lobe of the liver. It is formed by three branches. The phlegmatic vein is the smallest, and is added to the vena portæ, just as it penetrates the liver on the side of the hepatic duct. The next is made of two branches; of which one returns the blood of the posterior gastric artery, and therefore may be called the posterior gastric vein; and the other is furnished by the pancreas and duodenum, and therefore is the pancreatic vein. The third and largest branch of the vena portæ is the mesenteric vein, which not only collects the blood from all the small intestines, but likewise receives the inferior mesenteric, or vein of the rectum, which forms the communication that has been described with the pelvic veins.

The veins of the left lobe of the liver, are furnished in the goose by those which accompany the anterior gastric artery, and some branches from the head of the duodenum.

The anterior gastric veins produce two small trunks, which enter at the two extremities of the liver, in the concave surface of the left lobe of the liver, as it lies upon the edge of the gizzard; the veins from the head of the duodenum furnish a small vein which passes backwards to penetrate the posterior part of the liver in the left lobe.

In the cæcum, the veins that the left lobe of the liver derives from the anterior gastric, are more numerous than in the trunk.

The veins of the zone of gallic glands, and of the lower portion of the esophagus, do not contribute to the secretory vessels of the liver, but proceed to the superior part of that viscus to terminate in the vena cava; as does also the umbilical vein.

The vein which returns the blood of the inferior extremities, is divided in the pelvis into two branches, which correspond with the femoral and iliac arteries; the one passes through the ifchiadic foramen, and the other through the hole upon the anterior margin of the pelvis; but the proportion they bear to each other in magnitude, is the very reverse of what occurs in the arteries; for the anterior vein is the principal one, whilst the other is not a very considerable vessel, and receives its supply of blood from the muscles at the posterior part of the joint.

The femoral vein, immediately without the pelvis, gives branches on both sides, which receive the blood of the external and adductor muscles at their superior part; the trunk passes obliquely under the asccsiary muscle of the flexor digitorum, and over the os femoris, where it lies superficially; it then winds under the adductor muscles, and gets into the ham, where it receives many muscular branches, and comes into company with the artery and nerve. It here divides into the tibial and peroneal veins. The first is joined by some branches from the surface of the joint, meandering to the articular arteries; it also receives the anterior tibial vein which accompanies the artery of the same name. The tibial vein proceeds down the leg along with the artery on the inside of the deep-seated flexors of the heel; it turns over the fore part of the articulation of the tibia with the metatarsal bone, in order to get upon the inner side of the metatarses; above the origin of the pollex, it receives a communicating branch from the peroneal vein, and immediately after, two branches from the toes; one of them comes from the inside of the internal toe; the other arises from the inside of the external and middle toes, unites at the root of the toes in the sole of the foot, and is joined by a branch from the pollex, before its termination in the internal vein of the metatarsus.

The peroneal vein derives its principal branches, along with those of the peroneal artery, from the muscles on the outside of the leg. The trunk of the vein comes out from the peroneal
Birds.

These organs occupy the posterior part of the common cavity of birds, from the last rib to near the coxogen vertebrae; they fill all the cavities and depressions of the bones of the pelvis; the posterior surface, therefore, of the kidneys is extremely irregular; their anterior part is rather flat, and they are notched upon the external edge, which gives usually the appearance of their being composed of three lobes; but the inequalities of the edge seem to arise rather from the kidneys being larger at one place than at another, than from an original division into lobes: the prominences correspond to the most depressed parts on the pelvis; accordingly, the kidneys are observed to form a projection at the upper end, where they lie on the depression of the os ilium, again opposite to the hollow on the inside of the iliacal foramen, and lastly, at the lower part of the kidney, where it fills the concavity of the ilium.

The kidneys have a covering of thin peritoneum, and under this, they seem to possess another thin membranous tunic, which closely invests them, as well where they are applied to the bones, as anteriorly; this coat also appears to be reflected into the substance of the kidneys, and to form the cellular connections of the different parts which compose these organs. According to the academicians, the kidneys of the corvus corax are separated from the other parts of the lower belly, by a distinct membrane, and instead of being divided into three lobes, are toothed like a cock's comb on their gibbous part.

The texture of the kidneys is very fragile; readily giving way under the slightest injury. They yield to the pressure of the finger a granular feel, as if composed of a number of minute bodies, easily separable from each other: the surface of the kidneys also, presents the appearance of an aggregation of small glands.

The tubs and larger branches of the blood-vessels of the kidneys have been already described. The termination of the minute ramifications of the artery cannot be so clearly perceived as in mammalia. When coloured fluids are thrown in by the artery, the whole substance of the kidney appears to equally admit the injection: the minute branches of the blood vessels are too numerous, therefore, to allow of a distinct view of the figure assumed by the secretory extremity of the arteries. But it is probable, from the structure of the kidney differing in other circumstances, that it is not wound into a coil, as in man and quadrupeds.

The kidneys of birds, in general do not possess any cavity for collecting the urine, previous to its expulsion by the excretory duct: each of the little nares which form the original glands, produces a duct: these are joined by the neighbouring ducts, and thus others are generated, which terminate in the ureter or common excretory duct of each kidney. The ureter lies upon the anterior surface of the kidney, partially embedded in its substance, so that it is visible along the whole gland, except at the upper part.

The members of the academy describe the kidneys of the ostrich as being evidently composed of distinct glands, and that the ureter did not lie as in other birds, superficially, but was concealed in the glandular substance; in which situation it suffered a degree of dilatation, forming as it were, a pelvis, the whole length of the kidney, into which the different excretory ducts discharged their contents; nor, however, from pelvis, as in mammalia, but by open and plain orifices. Mr. Ranby, in his account of the anatomy of the ostrich, states, that he found the ureters occupy their usual situation on the middle line of the anterior surface of the kidney; but that the superior branch of the ureter was very conspicuous, and entered the middle of the kidney, where it formed a very large pelvis.

The structure of the ureters appears to be exactly the same which these ducts possess in the human subject.

The course of the ureters, after leaving the kidneys, is behind the rectum, to which they become connected by the peritoneum covering the intestine: they proceed, for a very little way, involved in the coats of the back of the rectum, and open usually upon two little papille, which project into the cloaca, or termination of the rectum. The orifices of the ureters in the cloaca, are much less than the width of tubes to which they belong; this, therefore, added to the obliquity with which they perforate the cloaca, answers all the purposes of a valve, and prevents any regurgitation of the urine back upon the kidneys.

The Panthian dissectors observed in the effrîches and demotelles of Numilia (ardea virgo), that the ureters became united to the excretory duct of the testicle, at the lower part of the kidney; the common duct produced by their union terminated, as usual, in the back of the cloaca. This structure certainly does not exist in the generality of birds.

The above description anticipates the observation, that birds are unprovided with any distinct reservoir for urine; analogous to the bladder: it is the cæcum throughout the whole bird, without an exception, that the feces and urine are expelled together; but the dilatation of the end of the rectum or cloaca, in some species, supplies the want of the urinary bladder, to a great degree, and renders the ejections of both the urine and feces less frequent than they would otherwise be, by affording a temporary accommodation to a considerable quantity of excrement. These dilatations are remarkably large in the effrîches, parrots, &c. See that part of the article which treats of the great intestine of birds.

It is a matter of common observation, that the excrements of birds are of a white colour, and appear as if they contained some cærenaceous substances: this effect is universally attributed to an admixture with the urine, which is supposed to be of this colour and consistence; it deserves to be mentioned, however, that if the urine be expressed from the kidneys, or examined before it has passed into the rectum, it is neither white, nor of a chalky consistence, but a limpid aqueous fluid, which exudes a jujunct smell, that is very perceptible in the larger birds, from which some quantity of the urine may be obtained, by compressing the kidneys. It would seem more probable, that the white and chalky appearance of the excrements of birds, depended upon the quantity of caelenaceous matter contained in the solid parts of the feces, than that it is derived from the urine. In proof of this supposition, it may be remarked, that

personal muscles, and passes superficially over the joint at the hock, and along the outside of the metatarsus; near the poll, or great toe, it feeds a branch round the back of the leg, to communicate with the tibial vein: after which, it is coiled upon the outside of the external toe to the extremity, receiving anastomosing branches from the tibial vein.

Where the veins run superficially upon the upper and lower extremities, they seem to supply the place of the branches of the cephalic, saphena, and the two saphenae; but the anastomosis is lost upon the upper arm and thigh: these branches forming deep-seated trunks: this constitutes the greatest peculiarity in the distribution of the veins in the extremities of birds.
that upon one occasion, where we fed a fowl with madder for a different purpose, the crotonaceous part of the excrement left its usual whitewashes, and became of the pale pink colour which madder is well known to communicate to calcareous earths.

Renal Capsules.

These bodies hold the same situation as birds as in mammalia; they also usually possess an irregularly triangular figure. The proportion which they bear in size to the kidney, is perhaps less than generally occurs in quadrupeds. In the goose, they are each about as large as a pea. The colour of the renal capsules is in every instance more or less yellow. Several of the older anatomists have described a single renal capsule in some species of birds: the mistake seems to have arisen from their being occasionally so closely applied to each other, that they appear as one body.

The renal capsules of birds do not possess any cavity or dilated part for venous blood, which renders it probable that the enlargement of the capillary vein, which has attracted so much attention in the human subject, is no way concerned with the function of these bodies.

Having discussed the structure and operations of these organs which are more immediately concerned in supporting the life of the individual, we shall proceed to consider those which are subservient to the second order of functions.


The testicles of birds are always two in number; they are situated on the insides of the body, high up in the loins, upon the superior edge of the kidneys, from which position they never descend at any period of life, as in mammalia. Consequently, birds are not provided with a foramen, or any external pouch for the accommodation of these glands. The figure of the testicles is most commonly oval; occasionally they are of an elongated form, as in the coffee-awry. The testicles are nearly round, as in the curassow, and other infaline.

The testicles appear to receive a covering from the peritoneum; but their proper tunic is remarkably strong, dense, and inelastic.

It will always be a matter of great difficulty, to exhibit satisfactorily, the intimate structure of the testes of birds, as a successful injection from the vas deferens is nearly impossible. The seminiferous tubes are so tender, that they do not sustain the least force without being ruptured; and at the period when the testes are fully developed, they are loaded with their own secretion, a circumstance highly unfavourable to the exhibition of the structure of these organs by the means of injection. The blood-veins of the testes are easily traced; some of them pass in the usual manner directly from the back part, through the glandular substance, to the surface, where they unite with others which spread in an achoracent form, under the capsules of the testes. The great mass of these glands is evidently made up of tubes, which are convoluted in all directions, and are separated into bundles or packets, by very thin cellular membranes. Their connection with the secretory extremities of the spermatic arteries, and their termination in the excretory duct, are, however, involved in obscurity, for the reasons already given.

The testicles of birds differ very much in size at different seasons of the year. When these organs are not exercised in the act of generation, they become remarkably diminished; but, during the period in which the female lays her eggs, they acquire a bulk even beyond what might be expected, from the size of the bird to which they belong. This subject has been strikingly illustrated by Mr. Hunter, in a series of figures representing the variation of bulk which takes place every spring in the testicles of the common poultin; by which it is shewn, that the testicles of this bird are ordinarly about the size of pin-heads, but, during the season of propagation, acquire nearly the bulk of pistol balls. See Plate VII. in the Anatomy of Birds; No. 1. exhibits the testes as they exist in the month of January; No. 2. as they are in the middle of February; No. 3, as they are found in the beginning of March; No. 4, their size in the latter end of March; and No. 5, the bulk they assume in the month of April.

The vas deferens, or excretory duct, arises usually from the posterior part of the testicle, and probably always suffers a certain degree of convolution or coiling upon itself, corresponding to the epididymis, which generally differs more or less in colour from the body of the gland. In the curassow and jubal, it has been observed to be black; in the coffee-awry yellow; and in the ardea virgo, a green colour. The academicians represent the epididymis of the coffee-awry as being extended for some way above the testicle, and considerably enlarged at the top. See Plate VII. in the Anatomy of Birds. Fig. 1. a the two testes; b b the epididymis of each side; c c the vasa deferentia; d d of the ureters coming from the kidney to unite with the vasa deferentia; e e the excretory ducts common to both the kidneys and the testicles.

In the offish, the epididymis turns up on the side of the testicle; and in the ardea virgo, it is pendulous from it, and only connected by one end. The vas deferens also in this bird, appears to arise from the side of the testis, instead of the epididymis; and at its lower part, the duct unites with the ureters, in the same way as is represented in the coffee-awry. The excretory duct in the coffee-awry, the epididymis is situated below the testicle, which it almost equals in size.

In most birds the vasa deferentia proceed to their termination, without undergoing any remarkable degree of convolution, or experiencing any dilatation analogous to the vesiculae femininae; but in the cock, these ducts are composed of convolutions or reflections of a tube from side to side, which are so closely applied to each other, that a longitudinal section of the duct presents the appearance of a series of cells, which seem to communicate with each other in the middle. These become larger and more numerous towards the lower part of the vas deferens, and are capable of containing a considerable quantity of semen. It may be premised, therefore, that the cock, and other falacious birds, are provided with these receptacles of semen to enable them to meet the exigency of frequent copulation; and it is also to be observed, that these birds which have the vasa deferentia more finely formed, do not perform the act of coition so rapidly as the gallinaceous fowl. See Plate VII. in the Anatomy of Birds. Fig. 2. exhibits the genital organs of the common cock; a a the testicles of an oval shape; b b the epididymis at the posterior part of each; c c the vasa deferentia, one of which is cut open to expose the loculated appearance it presents internally.

The penis, in those birds where it has been observed to exist, is fixed upon the end of the rectum, immediately within the verge of the anus; it is usually of a pyramidal figure, and in its ordinary state is twirled like a screw; its external tunic is derived from the intestine, and is formed into a number of little ruffs, or processes, giving the edges of the penis, in its contracted state, a jagged or notched appearance. The body of the penis is composed of a white ligamentous
neculous habitation, which supplies the place of the corpora cavernosa, but does not seem to contain any cells or cavity internally.

There is a groove, corresponding to the urethra, along the side of the white ligament: it takes the spiral course of the penis, and in no instance could we discover that it formed a distinct canal, the external coat of the penis appearing always to dip into the groove, so that it was visible externally: and hence it might be said that the urethra of birds is fixed upon the outside of the penis. See Plate VII. in the Anatomy of Birds, fig. 3. represents these parts as they are found in the head of the most perfect species, and shows the edges deflected, and marked by the folding of the external part of the skin. In the second figure, the urethra, commencing upon the first side of the penis, and continued upon the same side as the urethra of a frog and at the end of the penis the folds gradually disappear.

The form of the ovis's penis is not spiral; it is simply smooth upon the surface, and a slight shape has been given to it, as if the tongue. The Papian anatomists describe it as being composed of white thick membranes and of two deepish yellow ligaments or sabines. They appeared to consist of very compact transverse fibres. One of the membranes was thicker than the other, and adhered strongly to the penis; the other laid immediately on each of the laminae, which were separated from each other, and united about two fingers from the extremity. One was longer than the other, and united to the ridge of the prepuce. The origin of the penis was at thecardilagus' feet, which is situated at the junction of the bones of the penis, from whence it was turned downward, and concluded in a little pouch, which was placed at the lower part of the cloaca, in which the penis was contained in the anus. This small pouch can be distinctly separated from the large bag of the cloaca, by the contraction of the margin of its foramen. The upper pouch only permits the excrement to pass from the other occasionally, and when it is closed, forms a fort of sheath for the penis.

The penis of birds receives some distinct muscular fasciculi from the rectum, which are inserted into the root of the ligamentous body; they appear to have the power of retracting it, or rolling it into the spiral form, and may perhaps render it more erect during copulation.

The pouch of the penis is large in the ovis. The academicians describe four of them, two on each side. The two first took their origin from the internal part of the os rectum, and descended along the pouch of the rectum, for the space of two lines, which they penetrated near the extremity, and passing under the sphincter ani, were inserted at the base of the penis. The other two muscles went from the internal part of the os rectum toward the bottom of the kidneys, and defended by the sides of the ureters, and after perforating the rectum, were attached to the lateral parts of the penis.

The penis of birds is unfurnished with any structure similar to the chicken or titup; from which it might be questioned whether it is capable of receiving any peculiar sensations during the act of copulation. It would seem probable, however, that the penis is the chief seat of pleasure in birds, as well as mammals, because it changes its form during copulation, and experiences a great degree of relaxation afterwards. The pouch of the ovis is prolonged four inches out of the anus during the performance of the coition; and after the coition is consummated, it is so much relaxed, that the animal has not the power of retracting it for some minutes; in which condition the penis hangs from the anus, and so much resembles an earthworm, that the ducks must take it for one, and attempt to swallow it. It is remarkable, however, that the greater number of birds, are either provided with a penis, or have merely a rudiment of it, which is incapable of conducting the semen into the organs of the female.

In those birds which want the penis, it is very easy to perceive the manner in which the vasa deferentia terminate: thus, in the common cock they can be readily traced passing along the sides of the rectum to the back of the cloaca, into which they open at little lower than the rectum, upon two papillae, which are red and covered with a minute coat formed by the internal part of the cloaca, but within the verge of the anus. The populi may be distinguished and have pointed; and although the base of these is fixed, the tip of the organ, being upon the point of the papilla, is extremely small, that it is disposed with difficulty, and will fearfully suffer the least violence to pass through it. See Plate VII. in the Anatomy of Birds, fig. 2, of the two inner papillae, upon the point of which the vasa deferentia terminate in the cock. A little is introduced into one of them, and through it, and near the center of the papille, we see the office of the rectum designated by the letter d. d.

As all birds have no means of conveying the semen into the body of the female, a natural eversion of the extremity of the cloaca always takes place during the copulation of birds.

The termination of the excretory duct of the female is difficult to discover in most of the birds which are furnished with a penis. This arises partly from the facts of the ducts becoming extremely thin and delicate near the extremity, and partly from the papilla upon which they open into the gut, being in those cases so small as very easily escape observation.

The academicians did not succeed in tracing the vasa deferentia: their termination in any of the birds they described. They note, however, that the penis of the ovis and cophin us has no communication with the ducts, nor did they contain any tube in the internal part by which they could give passage to the semen. In all the birds we have examined, we could not perceive the least appearance of a canal in the interior part of the penis, or any means of communication between it and the vasa deferentia.

In the gender we have been able to discover the mode in which the semen is discharged from the excretory ducts. At some distance behind the root of the penis there are two papillae, surrounded by a number of small follicular glands; they are not far at distance as those of the cock, and so little prominent, that and is minutely examined, they are not distinguishable from the glandular parts of the surface of the intine line which lie next them, and might easily be mistaken for a prominent edge of one of the follicles: from the point of these papillae a duct can be traced, as in the cock, to the back of the intine line; but furnished with coats so thin that it is perfectly transparent. See Plate VII. in the Anatomy of Birds, fig. 3, of the small papilla on which the vasa deferentia terminate in the gender. Some small follicular glands are seen around them, and farther within the intine line of these papillae, as indicated by the letters d. d. at these points also there are some small mucous glands.

Mr. Home has described the penis of the drake as possessing a distinct canal analogous to the urethra of mammalia, into which the vasa deferentia open close to the origin at the verge of the anus. He treated the penis in a manner when pulled out to its full extent, fix inches long, but that when left to itself it disappar in the verge of the anus, in consequence of the contractile power of the urethra. (See Phil. Transact. vol.xxi. p. 614.) The representation of the penis of the drake is copied in Plate VII. of the Anatomy
of Birds, fig. 4, a a the verge of the fundament surrounded by feathers; b b the urethra; or femoral canal laid open throughout its whole extent; c c the orifices of the vasa deferentia; d d the external tunic of the penis laid open, and from its elasticity thrown into serpentine folds.

It deserves to be mentioned, that Blainius also supposed the vasa deferentia of the drake terminated in the penis, although he spoke doubtingly, not having actually traced them thither. See Anatome animalium Gerardii Blainii.

In the gander, swan, ceyxorby, and other birds which we have examined, the channel that runs upon the external part of the penis supplies the place of the urethra, and appears fully competent to answer the purpose of a conduit to the female, when it is introduced into the organs of the female.

Besides the mucous follicles surrounding the termination of the ureters and femoral ducts, there are some others much larger upon the margin of the anus, on each side of the base of the penis. In the gander we have noticed twelve of these, fixed on each side. They appear like masses of fat lying under the inner membrane of the intestine. The three outer glands have wide orifices which lead to a cavity within of some size; they furnish specimens of simple mucous follicles, a greater size than are almost ever met with, even amongst the largest animals. See Plate VII. in the Anatomy of Birds, fig. 5, c c. the large follicular glands on the margin of the anus of the gander; j j j the three smaller glands next the penis. The anal glands are very remarkable in the ceyxorby.

No chemical analysis of the semen of birds has yet been attempted. The undertaking will be attended with some difficulty, from the small quantity which can be collected for investigation.

**Female Parts of Generation.**

There are no parts of the structure of birds which deviate more from that of mammals, than the female organs of generation: not only their construction, but their functions, differ so much, that the same names cannot be applied to each, without extending analogy beyond what is justifiable. The genital organs of the female bird strictly confit but of two parts, an ovary and ovarian tube; for the different portions of the latter, which have received the names of uterus and vagina, perform very different functions from the same parts in other animals.

The ovary of birds is always single, which is a peculiarity of structure hardly ever met with in the other classes of animals. It is situated over the descending aorta, above the kidneys. Instead of the ovum being imbedded in a solid mass, as in mammals, they are contained in membranous cysts, which are prolonged into peduncles, or footstalks, that are attached to the balls of the ovary, thus presenting the appearance of a cluster, or bunch of fruit, from whence the older anatomists were in the habit of calling the ovary of birds, the racemus vitellorum. Before the ovary, however, is developed, the rudiments of the eggs do not project beyond the surface, but lie in close contact with each other, and are included by the external membrane of the ovary, something in the manner of the ova of fish, or amphibious. The capsules which invest the ova of birds in the mature state, appear therefore to be formed by the extension of the outer membrane of the ovary, just as the contents of a herinia obtain during their protrusion a covering of peritheatum. The membranous bags, in which the ova are included, adhere to the proper tunic of the egg at the anterior part only; for posteriorly they are quite distinct, being prolonged into a funnel, or tube, which forms the peduncle to each ovum.

The blood-veins are transmitted through this funnel, and ramify in the space left between the capsule and the back part of the ovum, distributing their branches in a similar way to the central artery of the eye upon the back of the crystalline lens in mammals. The capsules are extremely vascular at every part, except a certain portion of the anterior surface, which appears like a white streak, or broad line. When the eruption of the ovum takes place, this part of the capsule gives way, after which the cyth appears like the cup of an acorn, when the nut has been freed. The older anatomists almost universally believed that the capsules of the ova were imperfect at their anterior part, and that the white streak was owing to the proper tunic of the ovum being actually exposed at this place; they describe the capsule as being extended upon the ova in a manner similar to the internal coats of the eye, and, like them, terminating by a defined line at the anterior part. The celebrated Harvey, however, observed that the membrane composing the capsules was continued over the anterior part of the ovum, at which place it became very thin. The observations we have made on this subject confirm the assertion of Harvey; we have always been able to detect a very fine pellucid membrane extended over the white line, which has all the appearance of being the continuation of the capsule. The coat of the capsule consists of several indistinct layers; and it is one of these only which appears to pass over the white line. The separation of the tunic of the capsules into layers is probably not an original formation, but is produced by the increate which takes place in the number and size of the blood vessels, and therefore the part which lies over the white streak might be considered as more nearly resembling the membrane of the capsule as it first existed. There are many instances of parts, on changing their position, either acquiring or losing vacuarity, and becoming so much altered in their structure and appearance, that separately they could not be recognized for the same. The tunic conjunctiva of the eye affords a well known example of this fort.

The portion of the capsule corresponding to the white line, from being bereft of blood-veins, becomes thin, is easily ruptured, and is incapable of supporting any internal actions, in consequence of injury; we accordingly find, that this part suffers laceration when the ovum is fixed, without the least inflammation succeeding, or any procéd similar to that which arises upon the rupture of the ovary in mammals. There is no deposition of new substance in the cavity of the cyst, ovum lateum, formed. The lacerated portions of the membrane disappear (probably by absorption), and the edges assume the appearance of being cut, the capsules become contracted and thickened, and remain hollow, presenting very exactly the resemblance of cups or the calyces of flowers, and thence they have been often called the calices.

The base of the ovary, in which all the pedicles of the ovum terminate, is of a peculiar texture. It is porous and tough, and seems to be composed of an intermixture of vessels and strong cellular substance; it adheres firmly to the parts upon which it is placed.

The ovum, during the time they remain in the ovary, poffes only the yolk and the cicatricula; the whites and the shell being added to them during their passage through the oviduct. Many of the blood-veins which are distributed between the capsule and the ovum, penetrate the membrane of the latter, in order to supply blood for the nutrition of the egg during its growth. But when the ovum arrives at maturity, these branches degenerate, and disappear entirely before the ovum is expelled from its cyst.

For the illustration of the structure of these parts, see Plate...
The ovarian tube, or oviduct, during the season of laying, fills the greater part of the lower belly; it forms a number of curves or convolutions similar to the intestines, which, however, are not permitted the same latitude of motion amongst each other, because the prolongation of peritoneum, which includes the oviduct, is remarkably strong, and is not so long as the parts it contains, and therefore the convolutions are clove close together, and even some of them are doubled up within the peritoneum. The disproportion between the oviduct and peritoneum, which invests it, arises from the additional bulk the ovary acquires when its functions are exercised, whilst the peritoneum must preserve at its back part its original extent, i.e. the length of the left kidney, from the middle of which it is reflected.

There is no decided muscular coat belonging to the oviduct; there are, however, muscular fibres between the peritoneal and internal coats of those parts, which have received the names of uterine and vagina; upon the former they are transverse, and upon the vagina the course of the fibres appears to be longitudinal.

The internal coat of the oviduct is the most remarkable part of its structure; and upon it chiefly depends the distinctions which have been made of the tube into infundibulum, Fallopian tube, uterus, and vagina.

The infundibulum is the extreme part of the tube next the ovary; it is composed apparently of a single thin membrane; the peritoneum and the internal tube becoming both delicately fine, and so closely united to each other, at this place, that they seem to be but one. This membrane is folded longitudinally, and it is seen that the folds of a garment, and is thickened by its superior edge to the bursa or matrix of the ovary; and inferiorly it is connected to the uterus; by which means the folds of the membrane are always kept spread out, ready to catch the ova as they are discharged from the ruminating animals. The passage from the membranous expansion of the tube into the oviduct is contracted, and thence occurs the dilatation of this part to a funnel, and the application of the term infundibulum.

The next portion of the oviduct, or Fallopian tube, is of considerable length, being several times coiled backwards and forwards upon itself. It is very nearly of the same width at every part; and the inner membrane is irregularly coiled, and forms numerous thick folds, which take an oblique or spiral course. The internal surface of this part of the tube resembles very much that of the digestive stomach in ruminating animals.

Where the part termed the uterus commences, there is a contraction of the tube, to which succeeds a dilatation of an oval or egg shape; in this the internal membrane acquires more firmness, and instead of the soft white spiral piece, produces an immense number of strong vascular processes or flacciduli, which give the internal part of the uterus the appearance of being fringed or foliated.

The tube again becomes diminished in capacity, and its structure changed, to form the part considered analogous to the vagina. At the origin of this part from the ovary there are several angular contractions; after which, the canal undergoes some degree of convolution, which is concealed by the peritoneal coat. The internal membrane produces longitudinal rugae, or folds, which do not project far into the cavity of the tube.

The oviduct finally opens into the cloaca on the left side, not by a simple aperture, but the extreme of the vagina is protruded for some way into the cavity of the intestine, appearing as if a portion of the oviduct were turned inside out; and to the puckered form thus produced, the old anatomists, who were always desirous of comparing the structure of other animals with that of the human subject, gave the name of oviduct. See Figs. VII. in the Anatomy of Birds, p. 138; see the membranous expansion of the oviduct, and its attachments to the ovary and the uterus, the aperture leading from the infundibulum to the interior of the oviduct; the convoluted part of the oviduct, which is supposed to be analogous to the Fallopian tube, and a part of it laid open to exhibit the spiral folds of the internal membrane; a view of the ovary or uterus cut open, and a portion of it turned backward to expose the foliated structure of the internal membrane; the vagina detached in a degree from its peritoneal covering to bring it more into view; the cavity exposed, showing the longitudinal folds; the projection of the end of the oviduct into the cloaca, with the corrugated form; by which it opens into the gut; a portion of the rectum, left to explain the connection these parts have to each other; the ureters, through which a bridle is introduced.

The uses which the several parts of the oviduct of birds serve, are very peculiar, and can hardly be compared with the functions of the genital organs of other animals. When the ovum is shed from the vitellarium, it is but imperfectly formed; and in passing along that portion of the oviduct which has been called the Fallopian tube, it meets with an albuminous fluid, which is secreted in abundance from the plicated membrane; a certain quantity of this fluid attaches itself to the ovum, and constitutes the whites and the chalazae. The egg now attains an oval figure, and while still soft, descends into the dilated part of the oviduct, in which it is detained for some time, and obtains the calcaneous covering or shell; after which, the lower portion of the duct, or the vagina, fuses itself to be enlarged, and the egg is expelled from the body of the bird. For the further history of the formation of the ovum, we refer the reader to the article Egg. In birds, and all animals strictly oviparous, the evolution of the embryo, and the growth of the fetus, is carried on without the body of the parent, and therefore the functions of the organs of generation in these animals are confined to the development and perfection of the ovum, which, as already observed, is partly accomplished in birds, while the egg remains in the ovary; and partly while it traverses the ovarian tube. It therefore seems improper to borrow the terms applied to the organs of viviparous animals in the description of those which mainly minister to the formation and support of the ovum. The progeny of the fetus in birds: its mode of existence while in the egg, and the provisions for its subsistence afterwards, will be treated of under the head of Incubation, which see.
BIRD.

deferentia terminate, were introduced into the orifice of the oviduct within the cloaca; and it has been observed, that the hen, before coition, everts the intumescence so much, that the orifice of the vagina is visible on the outside of the body, which would render the injection of the male organ very practicable, especially in those birds which are provided with a penis. The impregnating liquor must be transmitted as far as at the part in which the egg is clothed with the shell; for afterwards, it would be incapable of exerting any influence upon it; and it is probable that it reaches the ovum even before it acquires the white, otherwise the fémur could not be immediately communicated to the cœaricula. Many have supposed, that the semen produced a vapour which was propagated to the ovary itself; but the existence and operation of the ovum are now generally disbelieved.

Upon the margin of the anus of birds there is usually observed a projection which has been considered analogous to the pecten. The academicians observed, that it possessed in the female of which the same muscles which belonged to the penis. This part, from its situation, is little exposed to agitation or friction in venereal congress, and from its covering, friction appears to be the common integument of the anus, cannot be endowed with peculiar or delicate sensation. It may therefore be looked upon as one of the examples of uniformity of plan which are so often displayed in the works of nature, without the accomplishment of any immediate or obvious effect.

The female organs of generation of birds suffer even a greater alteration than the male parts, in consequence of the castration of their functions. Before and after the period of laying has commenced, the ovary and oviduct, in which they had developed, are the largest of the vésicera, and their diminutive, that they are hardly to be seen; the ovary is a very small mass, which appears to be composed of an aggregation of minute pale yellow grains; the oviduct is a mere membranous substance, with scarcely any cavity, like a degenerated blood-vessel; and the aperture, which at one period permits the egg to pass through it, is so nearly obliterated, that it is perceived with difficulty, and so close that it does not suffer the smallest instrument, or even air, to escape from it into the intumescence.

Mr. Hunter, and others, have observed, that even the sexual characters of some female birds have entirely changed, after the time ceased to lay. This phenomenon has been remarked most frequently in the ptarmigan. Several hens of this genus have assumed the manner and plumage of the cock so nearly, that their real sex could only be decided by anatomical inspection.

Organs subservient to the Performance of the Animal Functions.

Bones.

The osseous fabric of the bodies of birds constitutes one of the most curious and characteristic parts in the anatomy of this class of animals; being in many respects so curiously formed, that the analogy between them and the same organs of other animals can scarcely be traced.

The bones of birds have been observed to vary in their colour. The water birds have them of a duller white than the other species, in consequence of their abounding with marrow. The bones which contain air, are always of the finest colour, much exceeding in whiteness the bones of any quadruped: they are also of a harder and closer texture. Beccmann, in the voyage of Dampier, has observed that the black fowl of the isles of Cape-Verd, and other birds of these islands, had black bones, and Daubenton reared some hens of this kind. The same peculiarity has been noticed in the pintado; but some preparations, which were preserved by Mr. Hunter to illustrate this subject, shewed that it is the periodium in which the blackness resides.

The chemical principles of the bones, do not differ from those of mammals, except in being there a greater proportion of the calcareous phosphat in the long bones, filled with air. The arrangement of the ossaceous particles appears to be in layers, rather than fibres, successively formed, and closely applied to each other.

The bones of the heads, as in the other animals with vertebrae, consist of those of the cranium, or brain-case; and those which contain the organs of sense, or, as they are commonly termed, bones of the face.

The external form of the cranium differs according to the species: a longitudinal and vertical section of it naturally exhibits the cavity to be somewhat of an oval shape, of which the end next the face is rather pointed. In the coel, the cavity of the cranium is oval, with the axis nearly vertical. The same bones enter into the composition of the cranium in birds, as in mammals: but the futures are obliterated at an early age in the former, that their cranium commonly appears as a single bone, and therefore, in order to examine the bones of the head separately, a very young subject must be chosen.

The ex frontis is originally made of two portions: they form the principal parts of the roof of the orbits, and a portion of the fœtus, which divides one orbit from the other. They bend down, on each side, a pointed process, almost to the base of the bill. The prominences which are seen upon the heads of the coëssurov, barnhill, pintado, and the curaffræ, &c., are attached to the ex frontis, but were originally formed by distinct ossifications, in the same manner as the bones on the tarsus, which serve as the mould for the shoes. The cañé of the coëssurov's head is filled with numerous cells; in the pintado, the texture is more like that of the other bones.

The parietal bones are also in two pieces at one period, although the distinction is but rarely seen. They resemble two semi-spheres, hollowed out on the inside, to receive the brain.

The temporal bones compose the posterior parts of the orbits, and exhibit a remarkable depression between two projecting processes, for lodgings the muscles employed in the motions of the lower jaw. The zygoma is not joined to the temporal bone.

The occipital bone originally consists of four portions: one placed superiorly, another below, and two laterally. When these are united, the bone has an annular figure, incircling the foramen magnum. The surface by which it articulates with the first cervical vertebra, is a single spheric protuberance, which is placed upon the anterior edge of the great foramen, and is received into a corresponding depression of the atlas. The mobility of the head is much encreased by this mode of articulation.

The sphênoidal bone forms the greater part of the base of the cranium, its processes are less evident in general, than in mammales, although it furnishes a remarkable one which proceeds anteriorly like a filet, and receives upon its edge the ends of the inter-articular bones, and the palatine bones and vomer, which are each adapted to fit this process, and to slip along it, as the upper jaw is moved. The sphênoidal bone wants the pterygoid processes, these belonging to the palatine bones in birds.

The internal surface of the cranium exhibits a sharp ridge, which divides the cavity into two principal fossæ. One contains the hemispheres of the cerebrum, the other, which is situated in the posterior and inferior part of the cranium, accom-
accommodates the two thalami nervorum opticorum, the cerebellum, and medulla oblongata, &c. On the surface of the inferior fossa there are two flight projections, produced by the back of the orbits, and a small spiny ridge along the top of the cranium, which marks the division of the hemispheres; the inferior fossa displays a number of depressions, corresponding to the several parts it contains. There are also two irregular projections on the side, formed by the internal organ of hearing, and anteriorly the eminence called the fosa pinnae, is to be seen, with a deep round cell for lodging the pinnae gland. The depressions on the internal part of the cranium are deepened in the parrot and certain birds.

The form of the cranium vary in many respects from what occurs in mammalia.

The formamina through which the olfactory nerves are transmitted are only two in number; they proceed from a little depression at the anterior part of the skull, and open upon the upper and posterior surface of the orbit, along the superior part of which they are continued, as a deep groove, or rather more than a fine-canal, to the upper and back part of the nose, where there is another foramen or slit, formed by the ethmoidal bone.

The optic foramina are close together on the inside of the cranium, being only separated from each other by the thin partition of the orbits; this is frequently found deficient at the posterior part, and in that case the two optic foramina are thrown into one.

The fihora-orbitar fissure does not exist in birds. The parts which are transmitted through it in mammalia, pass by distinct holes; some of these are arranged round the optic foramina, and one is found on the back of the skull.

The foramen rotundum and foramen ovale, are supplied by a single hole. It is seen on the line dividing the optic and basilar fissure.

The canalis caroticus appears to commence far back, on the outside of the cranium, and just as it turns up to open upon the fossa turcica, there is a small foramen for the transmission of the communicating branch of the internal maxillary artery.

The foramen laterum anterior does not exist, and the posterior foramen laterum is small, and placed within and under the external maxillary foramina.

The maxilla auditoria interna is a very palpable foramen in birds.

The bone of the face in birds, although they differ extremely from that of the mammalia, still preserve in general a distinct analogy, by which they can be distinguished and compared.

The fihora of the orbits, notwithstanding its structure is so diffuse, must be considered as analogous to the ethmoid bone. It is united to the os frontis posteriorly, and to the sphenoidal bone below; it is at first but a lamina, or plate of bone, so that it is nearly transparent, and in numerous instances it is in part membranous. At the back of the organ of smell there are occasionally a process which projects a little from the fihora, and then the bone forming a slit, through which the olfactory nerve passes. This process may be compared to the os planum, and the fihora itself, although it is not continued far into the nose, may perhaps be thought analogous to the nuchal bande of the ethmoid bone.

There is a bone unial of a triangular shape, which is attached to the anterior, and outer angle of the os frontis. This bone Cuvier has called the lacrymal, and others the suprachyreal. It is in a certain degree moveable on the os frontis. Its two posterior angles form the suprachyreal or anterior edge of the orbits. The superior of them is continued farther backwards in the orbital bone of prey than others, giving a considerable prominence to the upper edge of the orbit. In the alitidae, the suprachyreal arch is made of a number of small bones, which are continued from the lacrymal bone, and are distinct from the os frontis. The lower of the posterior angles of the lacrymal bone is prolonged considerately in the duck, but much more in the parrot, in which it goes so far back as to join the projection of the temporal bones, and thus completes the frame of the orbit.

The remaining bones of the face either enter into the composition of the mandibles, or are provided for the motion of these parts. The superior mandible is made up of the oss nasale, oss maxillare, and inter-maxillare, the maxillary, and palatine bones; the extremity of the mandible appears to be formed originally by a distinct bone, which is added, as it were, to all the rest. The separate parts of the mandible are not to be distinguished in the adult bird, but in young subjects they come easily alund.

The palatine bones are so thin at their connection with the posterior part of the mandible, that they readily bend. At the back part, they spread out into two wings or the pterygoid process, leaving a slit-shaped aperture for the posterior nares, in which is seen the vomer; where the palatine bones are joined above, there is a groove or gutter formed, which receives the inferior edge of the septum of the orbits, and on which the palatine bones have a degree of motion when the upper mandible is raised.

The sphenoid is one of the most remarkable parts of the head of birds. It is a very long delicate bone, extended in a straight line from the inferior and back part of the upper mandible to the outside of the articular bone immediately above the articulation of the lower jaw. It is, as in mammalia, originally composed of two pieces, which in large birds are always visible. The anterior portion has been commonly described as a process of the palatine bones, but it is really produced from the part of the mandible that corresponds to the os male or jugale, as it ought, in order to be consistent with analogy. The junction of the sphenoid to the articular bone, is in a degree movable; this, added to its general tenderness and flexibility, allows it to yield to all the motions of the superior mandible.

There are two bones belonging to the head of birds, to which there are none analogous in mammalia. One of these has been called by Dumeril the square bone, but improperly, as it is in no instance exactly square, and when its processes are eminent, it is rather of a triangular form. We have chosen, both from its office and situation, to call it the articular bone.

This bone is interposed between the articulation of the lower jaw, and the os temporis: with both of these it produces a true joint. The articular surface it presents to the temporal bone, is like the two condyles of the scapula of mammalia, and between these the end of the bone contributes to the formation of the cavity of the tympanum. The articular surface next the lower jaw is made of two irregular eminences, placed obliquely across, forming a double pulley. On the outside of this the temporal extremity of the sphenoid is attached, and on the inside there is articulated another flander bone, which, from its situation, deserves to be named the inter-articular bone. There is a process from the anterior part of the articular bone, which puffs up into the orbit, and receives the attachments of muscles.

The inter-articular bone is connected by a movable joint to the articular. It is a small, straight, three-sided bone, light
slightly enlarged at the extremities. It is directed forwards and inwards, and at the anterior extremity touches the inter-articular bone of the opposite side; at this place the ends of both are placed against the posterior extremity of the palatine bones, and are hollowed so as to encompass the lower edge of the septum of the orbits, along which they have some degree of motion, when urged forwards by the articular bones.

The effect of this mechanism is, that whenever the inferior end of the articular bone is brought forwards, which is accomplished in a degree by the opening of the lower jaw, but still more by particular muscles, to be hereafter described, the inter-articular bones press against the extremity of the palatine bones, and they communicate the impulse to the whole superior mandible, which being very thin at its junction with the os frontis, suffers itself to be pushed up or elevated from the line it commonly holds, and in this manner the mouth of birds is dilated in part by the motion of the upper as well as the lower jaw.

The parrot is remarkable for having a great degree of motion in the upper mandible; in this bird the superior mandible is at all times separate from the frontal bone, they being only connected to each other by a very flexible ligament.

The inferior mandible appears to be formed originally of four pieces; two of these correspond with the bones of the inferior maxilla, and the others produce the mould on which the lower part of the bill grows. The formation of the inferior jaw, independent of its connection with the bill, differs very much from that of mammlia. There are no condyles, nor any procres deserving the name of cornua, and the angle of the jaw is the thicket and lowest part of it. The articulation is made by two depressed surfaces placed on the side of a cavity, into which the posterior pulley of the articular bone flaps in the motions of the jaw.

The form of the bones of the mandibles is precisely the same as of the horsey bill, with which they are covered; except in some water birds, the bill attains more or less of a conic figure, sometimes compressed, sometimes arched, in some whole elongated, in others short, and varying in the degree of sharpness, strength, and solidity. As the diversity, however, which occurs in the mandibles of birds, is an external appearance, and belongs rather to the science of natural history, than to comparative anatomy, it would be improper to diffuse the subject in the present article.

The peculiarities of the fossa and foramina of the face in birds, depend chiefly upon the form and proportions of the bones.

The orbitar fossa are so large, that they appear to occupy the greatest part of the profile of the head of birds. They extend in the skeleton from the roof of the skull to the palate, and communicate with the posterior part of the organ of smell. Cuvier very aptly compares them to the impression which one would conceive might be left by pinching the skull between two fingers, provided it were in a soft state.

The nasal fossa are continuous with the orbitar. They open upwards by the two external nares, or nostrils, and below by the posterior nares. The septum nae proceeds a short way in the nose, that the nasal fossa make but one cavity. The external apertures of the nares are found in the bone, at the base of the convex surface of the bill.

The temporal fossa are not crossed by the zygoma. They vary in depth according to the strength of the muscles employed in raising the lower jaw; they are therefore most plain in the rapacious birds, and those with long or heavy bills.

The sphenoidal maxillary suture can have no existence in birds from the figure and extent of their orbits; neither have they the internal orbitar, and sub-orbitar foramina, or the sphenoid canal.

The incisive foramina are small and numerous in the hone, flamingo, eagle, &c. There is but one of a moderate size placed near the base of the bill in the duck, the euripeon, the corncrake, and the sound-bill, &c. In the ciconiary, the foramen incisivum is small, and near the end of the mandible, but in the stork it is of great size. The stork has a long slit, into which open an immense number of minute holes.

The os hyoideus possesses a singular conformation in birds. The body of the bone is in general of a short round figure, somewhat enlarged at its posterior extremity, at which place it is articulated with the two cornua. These resemble horns exactly, both in their shape and direction; they are terminated by additional pieces, which form a sort of joint with the principal part of the horn, and generally confit entirely of cartilage. To the posterior end of the body or middle bone of the hyoïdes, there is articulated a smallteryloid or dagger-shaped bone, which proceeds directly backwards, and soon terminates in a point. There is also a bone articulated with the anterior extremity of the body of the hyoïdes, which penetrates the substance of the tongue, and partakes in a certain degree of the form of that organ; it is commonly terminated by a pointed cartilage, which is attached to it by a moveable joint, and is continued to near the tip of the tongue. This bone we should choose to call the lingual.

The os hyoideus and lingual bone are singularly formed in those birds which have the power of protruding their tongue to take their food. In the woodpecker, for instance, the cartilaginous extremities of the horns of the hyoïdes are immensely long, and when the tongue is not projected, are lodged in a groove or saw, which runs over the whole head, and terminates only at the root of the bill. The lingual bone in these birds also is not cartilaginous at its extremity, but is covered with a hard or horny substance, which protrudes beyond the soft parts of the tongue for the distance of about the quarter of an inch, ending in a point, and furnished with a number of sharp barbs, or plicula, which are moveable in the posterior direction only; to that, like the teeth of some fish, they suffer the effects on which the bird preys to be easily perforated by the end of this instrument, but render it impossible for them afterwards to retreat.

The vertebræ of the different regions of the spine of birds do not bear the same proportion to each other with respect to number that is usual in other animals. The cervical portion in this class is generally composed of a much greater number of vertebra than any other division of the spine. The length of the neck is in most birds determined by the height of the legs. Those water birds, however, which procure their subsistence by fishing, are provided with long necks, and at the same time short limbs, as in the common, divers, &c. The dorsal vertebrae are usually less numerous than in quadrupeds. The vertebrae of the loins become anchylosed with the bones of the pelvis, and with each other at an early period, and consequently it is difficult to reckon them. The caudal vertebrae are most numerous in those birds which make the greatest use of the tail, such as the falcon, woodpecker, stork, &c.

The following table, which is extracted from Cuvier's Lectures on Comparative Anatomy, exhibits the variety which exists with respect to the number of the vertebra in many species.

Table
### TABLE of the Number of the Vertebras in Birds.

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>Vertebras of the neck</th>
<th>Vertebras of the back</th>
<th>Vertebras of the coccyx</th>
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</table>

The cervical vertebrae are joined to each other by a mode of articulation which admits of very free motion in two directions:—lateral, and backwards or forwards. This depends upon the form of the articular surfaces of the bodies of the vertebrae, which consist of two portions of a cylinder applied crossways with respect to each other, and both a little hollowed for their mutual accommodation. The cylinder on the inferior part of the vertebrae, performs by its revolution the motion to either side; and when that of the superior part revolves, the neck is bent either backwards or forwards. The cylinders at the top of the neck admit of motion forwards; but those of the middle and inferior part of the cervical spine are incapable of performing a free motion forwards; as one contains a slight depression on its anterior part, which receives the edge of the ether. The neck of birds, therefore, possesses in the contracted state, or when at rest, somewhat of the figure of an S, which is accompanied with several advantages to these animals. They are enabled by it to throw the weight of the neck and head more over their centre of gravity, without which some species would be unable to preserve their equilibrium; and by combining the S like motion with that to each side, birds acquire a greater degree of flexibility in the neck than is possessed by other animals; they can touch every point of their own body with the bill, and thus supply the want of the prehensive faculty of the superior extremity or the tail, of which they are deprived by their peculiar mode of progression.

The surfaces of the articular processes lie nearly in the direction of the bodies of the vertebrae, but in some parts they have a degree of obliquity conformable to the S like shape of the neck.

The spinoous processes are only to be observed on the superior and inferior portions of the cervical spine, where they exist both on the anterior and posterior parts of the vertebrae. In birds with long necks there is a fossa on each side of the posterior spinoous processes, for the attachment of the cervical ligament, or hypastrum medius. This space is to be observed perhaps in all birds, but is very remarkable in the bird, Soona cafionary and ophirh. In the last bird it is nearly as strong as it exists in the larger quadrupeds; the same kind of ligament is also interpolated between the spinoous processes of the dorsal vertebrae.

The transverse processes of the vertebrae of the middle of the neck spread forwards, and tend down a very procumbent process of some length. These give attachment to muscles, and form in some birds a sort of canal on the anterior part of the neck, which contains the two carotid arteries. The anterior fluted processes are little observable in the pinnia and psittacine tribes, the parrot, &c., but are usually very marked in the long-necked birds.

The dorsal vertebrae of birds have scarcely any motion, in order
order that the trunk of the body may not be affected by the 
omotions of the wings in flight.

Their famous processes are commonly analagous with each other, which sometimes occurs also with respect to the 
transverse processes. In the ostrich and caffowary, the 
processes of the dorsal vertebrae are distinct, and posses
a degree of motion from which, however, these birds cannot 
fuffer any inconveniences, as they do not fly.

The 1stel vertebrae have processes on both the 

anterior and posterior surfaces; and the transverse processes 
are usually very prominent. The last bone of the tail, 
is, in most birds, of a plough-share shape for the attachment 
of the quills. It is small and conic in the new holland 
"ostrich, and caffowary; and in the pawaal, it is thin, oval, and 

situated horizontally. It is wanting in a variety of the 
domestic cock found in America.

The sternum forms one of the most characteristic bones 
in the skeleton of birds. It is a very broad thin bone, 
covers the anterior part of the common cavity, like a buck-

ler, and produces from its middle line, in every bird which 
is capable of flying, a thin plate of bone, which resembles 
very much the keel of a ship; but it is most prominent at 
its anterior part. The upper edge of the sternum presents 
two narrow depressions, which receive the ends of the two 
clavicles; and to the most anterior point of the keel the 
keel-shaped bone is commonly attached. The posterior 
edge is thin, and in most species, contains a space on each 
side, which is filled with membranes. In the "ostrich, 
parrot, and most aquatic birds, this is an oval hole; but in 
the gallina it is an oblong vacancy. The keel appears to be 
added to the sternum, merely for the attachment of the 
great pectoral muscle. Accordingly, we find its projection 
is proportioned to the necessity there is for using this 
muscle during flight; and in the "ostrich and caffowary, 
which do not employ their wings as organs of locomotion, 
the keel is absent, and the sternum is round and smooth 
on the external surface, and is very small in proportion to the 
magnitude of these birds.

The ribs of birds have been divided, like those of mam-
mals, into true and false, or as Vie d'azir has termed them 
the femo-vertebral and vertebral. The true ribs are made 
of two pieces, which are each composed of bone; the 
posterior portion is affixed to the spine by means of two 
branches, of which one is articulated with the body, and 
the other with the transverse processes of the last dorsal 
vertebra. The anterior piece is articulated by one end, 
with the lateral edge of the sternum; and by the other, to 
the end of the vertebral portion. The lateral extremities 
of the ribs, being distinct bones, are to be called femoral 
ribs, which term we have employed in other parts of this 
article. Most of the true ribs are furnished with their 
middle, with a thin oisaceous process, which proceeds ob-
lincey backwards from the posterior edge of one rib, and 
overlaps the one next behind it, and sometimes even goes 
on to cover two ribs, as in the columnus cricatus. The 
sternebral and vertebral portions of the true ribs form, at their 
junction, an angle which points backwards, and is very 
acute in the fowl ribs, which proves that the thorax of 
birds is chiefly dilated by the anterior part of the sternum, 
being carried forwards from the dorsal spine; at 
which time, the moveable angles of all the ribs become very 
oblique. These angles are scarcely observable in the 
"fluminis birds. Their ribs affume very much the figure of 
those of mammals.

The number of the sterno-vertebral ribs is liable to vary. 
There are, on each side, four in the eucton and the caffowary; 
five in the reeaw, africam ostrich, and fork; six in the buttet; 
seven in the ecaul, the buzzard, the owl, the crane, and 
the duck; eight in the crested geese, and several other wa-
ter-fowl; and nine in the fruman.

The vertebral, or false ribs, are in most birds placed at the 
anterior part of the thorax, which is the reverse of what 
is observed in mammals. When there are any of these 
ribs situated posteriorly, they are only one or two, and 
perfectly formed; there are two pair in the "fluminin " birds, 
which do not project far from the spine.

The bones of the pelvis become confluted together at 
a very early period. Their original parts are therefore very 
difficult to distinguish. The portion corresponding to the 
afternum bears some resemblance to that bone in mammals; 
but the ilium and pubis cannot be recognized by 
their figure, and are only to be known by their relation to 
the different foramina. There is a very long, slender bone, 
originally connected to the ilium, on the fore-part of the 
acetabulum, which supplies the place of the "bida. This 
bone runs parallel to the anterior part of the ilium, with 
which it is occasionally joined towards its extremity, but 
occasionally with the ribs and ilium, except in the eight, in 
which bird the bones of the pelvis are broad at their 
shinphysis, and fused a little forwards, losing something of the appearance of the pelvis of mammals. 
The pubis unites with the ilium in the acetabules for a 
considerable way, and leaves a distinct hole analogous to the
afternum; and the space between these bones posterior 
in all birds, at the anterior part, the traces of this foramen.

The ilium is generally united to the facrum and back 
of the ilium, by the part which corresponds to the iliacal 
"bida; consequently the iliacal foramen is complete in 
the skeleton of birds. In the ostrich and caffowary, how-

ever, the ilium is separate from the facrum, and is a long, 
slider ilial bone, like the pubis. There is no tuberos-
ity to the ilium, that part being thin and extended, 
extent in the "ostrich, where it becomes somewhat enlarged. 
The ilium appears to be joined to the pubis in the new 
holland "ostrich, by the intervention of another short bone.

The bones of the shoulder are very peculiar in birds; 
besides the clavicles and scapula, there is an additional 
"ingle bone, called the fork; it usually possesses the figure 
of a V; the point is attached to the most anterior part of 
the keel of the sternum, and the ends of the branches are 
secured by a ligament on the middle of the dorsal extremities 
of the clavicles, and also to the posterior processes of the 
scapula, which is analogous to the acromion. The fork 
frequently approaches more to the figure of an U than a 
V. Its angle is idly often at some distance from the sternum, 
which it is bound by a ligament. In the gallina it 
terminates in a thin plate, from which a ligament is ex-
tended to the keel of the sternum. As a general observation, 
it may be flated, that the fork is strong and chie, 
and its branches wide, arched, and carried forwards upon 
the body, in proportion as the bird possesses strength and 
rudicency of flight; and accordingly, the "fluminis birds, 
which are incapable of this mode of progression, have the 
fork very imperfectly formed. The two branches are very 
short, and never unite in the africam ostrich; but are an-
chored together with the scapula and clavicle. The caffowary 
has here two little processes from the side of the clavicle, 
which are the rudiments of the branches of the fork. In 
the new holland "ostrich, there are two very small thin 
bones, which are attached to the anterior edge of the dor-
 sal end of the clavicles, by ligament; they are directed 
upwards towards the neck, where they are fastened to each 
other
other by means of a ligament, and have no connection whatever with the sternum.

The *clavicle* is a straight bone in birds; it does not lie in a transverse direction with respect to the trunk of the body, but proceeds upwards and forwards towards the lower part of the cervical spine, and in proportion to the length and projection of the clavicle, the bird poises its weight of wing and activity of flight. The clavicle at its articulation with the sternum is thin and broad; but the rest of the bone is of a round shape; it produces a process from the posterior part of its dorsal extremity, which is united to the head of the scapula, and in conjunction with it forms a depression analogous to the glenoid cavity, although not of the same figure. The inside of the extreme part of the dorsal end of the bone, is joined by ligament with the branch of the fork, as already mentioned.

The clavicles of the *frugibis* are remarkably short, and are anchyloved with the scapula at birth.

The *scapula* are two long, plain bones, with sharp edges, resembling, in a great degree, the blade of a knife; they lie parallel to the dorsal spine, and have no processes, except the one which contributes with the clavicle to form the cavity for lodging the head of the humerus; and a little eminence opposite to this, which seems analogous to the acromion, and is joined to the end of the branch of the fork. The scapula, like all the other bones of the shoulder, are very short in the *frugibis*, not passing beyond the first two or three ribs; although in many other birds these bones reach as far as the pelvis.

The *humerus* is a round, smooth bone, more or less enlarged, and flattened at the extremities; the surface by which it articulates with the scapula and clavicle, is at the very end of the bone, and is formed of a portion of a cylinder, instead of a sphere, which is most suitable to the motions of the humerus in birds, they being almost confined to the elevation and depression of the wing. The external tuberosity of the humerus is very small; but the spine which leads from it is greatly elevated in most species of birds. The internal tuberosity is, on the other hand, remarkably large, and furnishes a process at its upper part, which corresponds, in some respects, with the coracoid process of the scapula in mammalia. The humerus is long, in proportion to the other bones of the wing in the *African giffinich*, and takes the curvature of the bird's body. It is extremely short and small, and without processes, in the *New Holland giffinich*, and *coffiaswer.*

The humerus is connected with the bones of the fore arm by an articular surface, similar to that of the human subject.

The *radius* is usually a much more slender bone than the ulna, with which it is never observed to be anchyloved.

The *ulna* exhibits no remarkable processes; it forms a pulley on its lower end. These two bones are flat in the *maebo* (apitiprofus), and are joined by an articulation which permits motion in several directions, with two tubercles, one above, and the other below the anterior edge of the humerus. The wing of this bird, both in its structure and offices, resembles a fan. The ulna and radius are nearly of an equal size in the *frugibis*; they are both very small, and have but little motion on the humerus.

There are but two *carpal* bones in a bird; one is applied to the end of the radius, and permits the motion of the lower part of the wing beyond the line of the radius; the other moves a little upon the end of the ulna, to which its form is adapted. It has often a little process from its lower edge, which is analogous to the *piafforme*. The carpal bones are obliterated in the *frugibis* birds.

The *metacarpus* consists of two bones, which are united at their superior part by anchylophial for bone way. At this place there are some eminences which appear like the remains of the second row of carpal bones foldered together. The articulation of the metacarpus with the carpus is the segment of more than half of a pulley, which is grooved in the middle, and revolves within a corresponding surface of the lower carpal bone. This motion, for the convenience of description, is called flexion and extension; but it is in strictness a broad movement, which passes upon the arm, and is accompanied with a degree of rotation, by which the convex figure of the wing is raised in the very action of folding it. There is a hyaloid process, in the upper part of the third side of the metacarpus, which gives attachment to a small pointed bone, supplying the place of the *tub.' A similar bone is found to the external end of the small branch of the metacarpus, and corresponding to the *bick figner*. The principal, or fore finger, which furnishes the wing, is articulated with the large or radial branch of the metacarpus. It consists of two phalanges, and the first exhibits marks of having been originally two bones. The two pieces of the metacarpus are to be seen in the *African giffinich*, as also the three fingers; each of which is furnished with a hook, which is covered with a horn, like a claw; but in the *New Holland giffinich* the metacarpus is a single bone, and there is but one finger, which is also terminated with a claw. All the bones of the hand are compressed into thin plates in the *maebo*.

The *thigh* bone of birds has nothing very peculiar in its form; it wants the small trochanter; it is irregularly short, in proportion to the other parts of the limb, in such birds as have long legs; it is elongated in the *acipinere*, and shorted in some water-birds. The femur is strong in all the *galaxia*; and in the *frugibis* it is of an immense thickness; it is bent in the *cormorant* and the *little gredi*.

There is a certain portion of the ligament of the extensor muscles of the leg converted very early into bone; and this seems in general to supply the place of the patella; it is not usually precociously in skeletons.

The *tibia* resembles in its form the same bone in mammalia. There are several prominent edges on the fore part of its head for the attachment of muscles. The lower edge of the tibia forms a pulley with a groove along the middle. The head of the tibia is prolonged in a remarkable manner upon the thigh, in the *gredi* and the *diver*.

The *fibula* is a very small bone, and is soon anchyloved to the side of the tibia.

The *tarsus* and *metatarsus* confinal to the adult bird, but of one bone; it exhibits, however, grooves corresponding to the divisions which existed between its several pieces when it was first formed. These are strongly marked in the long-legged birds, and shew that the metatarsus contained originally as many bones as there are principal toes. There is usually also a prominence on the posterior part of the head of the bone which represents the *os calcis*. The inferior extremity of the metatarsal bone produces a process shaped like a pulley for the articulation with each of the principal toes.

There are three bones in the composition of the tarsus and metatarsus of the *maebo* by separate from each other in the middle; and therefore these birds are plantigrade, or walk up on the metatarsus as well as the toes.

The extraordinary length of limb which belongs to some kinds, as the *frugibis* and *sweden* birds, depends upon the extent of the tibia and metatarsal bone.

The *flork* and some others of the *grilles*, which sleep standing on one foot, possess a curious mechanism for preserving the leg in a state of extension, without any, or at least with little muscular effort. There arises from the fore part of the head of the metatarsal bone a round eminence, which presses up between the projections of the pulley on the
anterior part of the end of the tibia. This eminence affords a sufficient degree of resistance to the flexion of the leg to counteract the effect of the oscillations of the body, and would prove an insurmountable obstruction to the motion of the joint, if there were not a socket within the upper part of the pulley of the tibia, to receive it when the leg is in the bent position. The lower edge of the socket is prominent and sharp, and presents a sort of barrier to the admissio of the eminence, that requires a voluntary muscular exertion of the bird to overcome, which being accomplished, it slips in with some force like the end of a diasticated bone. Dumeril and Cuvier have described a similar apparatus to this in the knee of the fork; but they must have confounded, in an unaccountable manner, the one joint with the other; for the articulation of the femur with the bone of the leg in the common fork (ordo alta), certainly exhibits nothing peculiar in its structure. See Plate VIII. in the Anatomy of Birds. Fig. 1. represents the anterior part of the articulation of the tibia with the metatarsus in the fork; a the tibia, b the metatarsal bone, c the prominent edges of the pulley on the end of the tibia, d the round eminence of the head of the metatarsus, e the socket in the tibia, which receives the eminence during the flexion of the joint.

The bones of the toes vary in number, increasing from the inner to the external toes. Birds with four toes have the number of the phalanges in the following order, 2, 3, 4, 5; those with three toes have them, 3, 4, 5, except the raffowary and the New Holland ofrich, which have four joints to each toe. The African ofrich has only two toes, and four phalanges to both. Most birds have the three principal toes situated before, and the pollex attached to the inner and back part of the metatarsal bone near its extremity. The tuffard,萃affowary, New Holland ofrich, the plover, the puffet, and the long-legged plover, have but three toes; and the albatross, petrel, and penguin, want the pollex. All the stufhores have their toes opposed to each other, two behind and two before.

It would have rendered the description of the bones tedious and confused, to have given frequent references to the plates which represent them; the reader, therefore, will have occasion to contemplate the relation the different figures bear to each other; and to facilitate such comparison, similar letters are employed to indicate similar parts in each of the skeletons chosen to illustrate the subject.

When birds transport themselves from one place to another, it is mostly commonly by the act of flying; which consists in the successive elevation and depression of the wings; the latter motion being performed with so much force and velocity, as to comprefs a volume of air, the reaction of which is sufficient to impel forwards the whole body of the bird. The various kinds of flight depend upon the different ways of employing the wings, and the habits and economy of the individual, which it is the business of the naturalist to point out. Many birds are capable of using other modes of locomotion besides flying, for which their structure is equally well adapted; for instance, some tribes almost constantly inhabit the water, and swim with the greatest ease; others walk or run with the greatest rapidity; and others transport themselves chiefly by the effort of climbing. We have, therefore, selected a skeleton to exhibit the organs employed in each of these species of locomotion. See Plate VIII. in the Anatomy of Birds. Fig. 2. represents a skeleton of the New Holland ofrich, which was brought into this country by an ingenious young surgeon, Mr. Langhaff. It seems to partake of the structure of both the raffowary and African ofrich, but it bears the greatest likeness to the latter; and therefore we have called the bird an ofrich, although it has hitherto been considered by some naturalists as a raffowary.

This skeleton affords the best example of a running bird, which is at the same time incapable of flight. The sternal and bones of the wing are small; the centre of gravity is thrown fairly between the legs; and the inferior extremities are long, and of an immense disproportionate strength. Fig. 3. of the same plate exhibits the skeleton of the lark, which, as being a bird of high flight, forms a striking contrast with fig. 2.

Plate IX. of the Anatomy of Birds, contains the skeletons of a climbing and a swimming bird. Fig. 1. is the skeleton of the pigeon. The body is round and contracted; the neck short, strong, and flexible in different directions; the sternal and bones of the shoulder rather small; but its chief characters are the long thigh, and very short metatarsus, furnished with the climbing toes; by which means the bird can grasp any foreign substance, and apply the feet to any part of its own body, after the manner of the prehensile members of other animals.

Fig. 2. of Plate IX. shows the skeleton of the crested grue ble (columbus cretais). The neck is much bent; the parts of the upper extremity rather small; the ribs strong, and reaching far back; the sternal long; and the body poises this very much the form of a boat; the inferior extremity flattened behind, and the thigh bone very short, and the toes long and expanded; all which circumstances are necessary to the performance of the actions of swimming and diving with facility.

The separate parts of the skeletons, in Plates VIII. and IX. in the Anatomy of Birds, are indicated as follows.

Parts composing the head; a the occiput, b parietal bone, c the frontal, d temporal bone, e the lacrymal, f supraciliary bone, g nasal bone, h superior maxilla, i molar bone, j bone of the upper mandible, k palatine bone, l septum of the orbits, m articulare bone, n inter-articular bone, o zygoma, p inferior maxilla, q bone of the lower mandible, r external nares, s deficiency in the septum of the orbits where the optic foramina open, t temporal fossa, u spongy bone in the organ of smell.

Parts of the spine and trunk; v a cervical vertebra, w their transverse procusses, x the styles which depend on the forepart, d articulare procusses, e posterior spinous procusses, f spinous on the anterior part of the bodies of some of the vertebrae, g dorsal vertebra, h facral vertebra, i vertebra of the tail, k the ilf, or caudal bone, l osium, m ischium, n pubis, o foramen ovale, p ischiadic foramen, q vertebral or false ribs, r the true ribs, s the laterial portions, t intercostal procusses, u the part of the sternum next the body, v the keel, or projecting part, x deficiency at the lower part of the sternal bone.

Parts belonging to the wing; a the fork, b the clavicle, c the scapula, d the humerus, e its inner tuberosity, f the external tuberosity, g the spine for the attachment of the deltoïd and pectoral muscles, h the ulna, i the radius, k the carpal bone on the radial side, l the ulna carpal bone, m the head of the metacarpus, n the large branch, o the smaller one, r the stylie of the metacarpus, s the pollex or thumb, t the little finger, u the principal or forefinger.

The parts of which the lower extremity consists; a the femur, b its siny trochanter, c the tibia, d the elongation of the head of the tibia which occurs in the bipes, &c. e the fibula, f the metatarsus, g the prominence at the heel, h the pollex, or back toe, i the principal or anterior toe.

Muscles.

When the writing of the present article was begun, it was intended to give a full description of the muscles of birds; but as the subject has already extended beyond the
length that was expected, and if this were done, would exceed the bounds usually allotted to a single article, we shall only point out the most striking peculiarities in the muscular system, and correct some errors into which other writers have fallen in their accounts of this part of the anatomy of birds.

The muscles which move the lower jaw, do not differ essentially from those of mammalia. There is no marked distinction between the *m. temporalis* and *m. masseter*; they form two masses which arise from the temporal fossa and inferior part of the orbit; palpebros under the zygoma, and covers the side of the lower jaw from the joint to the commencement of the bill. There is a tendon which lies over the muscles on the side of the jaws, usually of a triangular figure; it is attached to the inferior bony portions of the orbit, connects them to each other, and thus completes the margin of the orbit. It is affixed to the protuberance on the outside of the lower jaw near the joint, and seems to prevent the mouth opening beyond a certain distance.

Birds have none of the muscles of the face, as they have no folds for them to move.

The lower jaw is depressed by a mucle which arises by two portions, one from the hollow behind the side of the occiput, the other from the surface behind and below the external mentus auditorius; both are inserted upon the back of the lower jaw. This muscle, although so unlike the *digastricus*, supplies its place, and fulfills its office.

There are three muscles for moving the upper jaw, which are quite peculiar to birds. The *temporalis* is of a radiated or fan shape; it arises from the septum of the orbit, and passing obliquely backwards, is inserted into the external surface of the end of the inter-articular bone, just when it becomes joined to the articular. By pulling the posterior end of the inter-articular bone upwards, the opposite end is pushed forwards, which produces the elevation of the upper jaw in the manner already described.

The *secon d* is a short thick muscle, arising from below the posterior part of the orbit, and before the external mentus auditorius, and inserted into the inner surface of the body of the articular bone and its anterior process, where it joins the inter-articular bone; it elevates the posterior end of the inter-articular bone, and thus raises the upper jaw.

The *third muscle* is for depressing the superior jaw; it is of a long taper shape, has one attachment to the inside of the lower jaw, and then becomes affixed to the inside of the inter-articular bone, the internal part of the pterygoid process, and sends a small tendon to the integument of the palate, just where the horny covering of the mandible commences. It is difficult to distinguish it from the pterygoid muscle, which appears to aid it in the depression of the superior mandible.

The tongue enjoys much less variety of motion in birds than in mammalia; it is only capable of being protruded, retracted, turned to each side; either directly or obliquely, slightly rotated, and depressed at the point. There are a great many muscles however employed in the performance of these motions; some of these act upon the os hyoideus, and others upon the lingual bone.

The drill is analogous to the *mylo-hyoideus*; arises from the upper and back part of the lower jaw, divides into two slips; one goes to the hyoid bone of the os hyoideus, where it meets its fellow; the other slip passes to the inner part of the middle bone or body of the hyoideus; it retracts the tongue.

The second corresponds to the *mylo-hyoideus*; it is a broad thin muscle, proceeds from the inside of the lower jaw, except its posterior edge, which comes from the outer part of the jaw; it is inserted upon the concave side of the cartilaginous extremity of the horn of the os hyoideus, around which it forms a muscular sheath; its use is to protrude the tongue.

The third muscle appears to answer to the *genio-hyoideus*; it comes from the superior edge of the lower jaw internally, and becomes attached to its fellow on the other side upon the hyoid bone of the hyoideus; protrudes the tongue a little from the obliquity of its direction, and seems to commence the actions of deglution by elevating the parts in the bottom of the mouth. We did not observe this muscle in the croc.

The fourth muscle of the tongue is extended from the horn of the os hyoideus at its root, to the hyoid bone, where it joins the muscle of the opposite side. They approximate the horns of the hyoideus, during the protrusion of the tongue.

The fifth is a very small muscle, lying along the internal surface of the horn of the os hyoideus; it feeds a delicate tendon to the under surface of the lingual bone, depresses the point of the tongue, and if it acts strongly, turns the tongue.

The sixth is a little short mucle, which arises from the end of the middle bone of the hyoideus, and is affixed to the under part of the lingual bone; depresses the tip of the tongue, and raises the bafe. This is a single muscle.

The seventh muscle lies upon its fellow upon the anterior surface of the superior larynx; it is attached to the root of the lingual bone. Its uses are to depress the base of the tongue, and thus elevate the point, and to retract the tongue while in the mouth.

The eighth is short; arises from the junction of all the bones of the os hyoideus on the lower surface, and is inserted into the upper and outer corner of the base of the lingual bone. It brings the tongue into a straight line, after the other muscles have depressed the tip.

The ninth muscle is the last; it is very minute, and passes from the base of the lingual bone to the very tip of the cartilage; depresses the point of the tongue without elevating its root.

The muscles which protrude and retract the tongue, are remarkably large in the woodpeckers and swans.

The muscles which move the head and neck are even more complicated in birds than in other animals. Most of these have their attachments so numerous and intermixed, that no description can convey an adequate idea of them.

The *lingual colli* begins in the thorax on the anterior spines of the dorsal vertebra; its fasciculi go from the anterior part or the cervical vertebra to the thyrohyale and transverse processes; and their tendons are longest at the superior and inferior part of the neck.

The *reitex capitis major anterior* is continued from the head as low as the fifth vertebra of the cervical spine.

On the posterior part of the spine there is a small muscle which seems to represent the superior part of the *rectus capitis*; it is extended from the transverse process of the fourth cervical vertebra to the back of the occiput; it brings the head backwards and to one side.

There are a great number of fasciculi interposed between the transverse and articular processes at the back of the neck. These tendons pass over several vertebrae before they are inserted on the middle of the neck, which is the support of the head backwards.

A muscle which has been considered analogous to the *cervicale deflexores*, is the chief extensor of the neck of birds. It arises from the spine of the back, opposite to the second
second rib by tendon, which, on coming upon the neck, receives seven slips of muscle, which descend from the spines of the seven inferior cervical vertebrae. The muscle then proceeds on the neck as a distinct slip, and at the upper part produces three tendons, which go to the back of the articular processes of the second, third, and fourth cervical vertebrae. The tendons receive muscular slips from the back of the spine as low as the seventh vertebra, or where the other slip began to descend. The ascending fasciculi furnish the tendons to the fifth and sixth vertebrae, and to the atlas. This muscle is enabled, on account of its descending and ascending fasciculi, to extend the neck even while the head is erect. Guiver describes the muscle somewhat differently in the heron and buzzard. The above account is from the gooff.

There is a curious shaped muscle along the inside of the preceding, which Guiver compares to the trachea cervicis. It commences by a slender tendon from the spinous process of the first dorsal vertebra, becomes fleshy at the lower part, tendinous along the middle, and again fleshy near the head, and is inserted into the occiput. Although it extends the whole length of the neck, it is so slender that its tendon is not thicker than a piece of twine or thread. It affords in the extension of the neck and elevation of the head.

The tracheo-manifoldus arises in birds from the anterior part of the second, third, and fourth cervical vertebrae, and is inserted upon the side of the occiput. The complexus proceeds from but a few of the articular processes of the neck; and the splenius does not exist in birds.

Guiver describes three recti capitis postici; but these muscles do not deserve to be so called.

The first, which he names the rectus maximus, arises from the spine of the dentata, and is inserted into the side and back of the occiput. It brings the head backwards, and to one side, and reenables in figure and office the splenius capitis.

The second, or rectus major posticus, proceeds obliquely from the spine of the dentata, under the preceding, to the depression on the back of the occiput.

The third, or rectus minor, is only a few fibres mixed with the ligament which connects the head with the spine.

The muscles of the back consist of a few fleshy fibres intermixed with portion of tendon, which are mostly ossified in all grown birds; they lie on each side of the dorsal spine, which they strengthen but cannot move.

The muscles of the tail are distinct, and generally large; some are calculated to raise the tail, some to depress it, others to move it laterally, and others again to unfold the quills of this part.

The first is the levator coccygis of Vie d'Azir; it arises from the back of the sacrum and the transverse and spinous processes of the last caudal vertebra, and sends distinct tendons to each of the spinous processes of the tail and the caudal bone. There is a fleshy slip also accompanying the last tendon. This muscle, as its name implies, elevates the tail.

The second, or depref coccygis of Vie d'Azir, is situated within the pelvis, and arises from the end of the sacrum and the ischium, where they join; also from the transverse processes of the bones of the tail. It is inserted by tendons into the spinous processes of the under surface of the caudal vertebrae, and distributes a number of muscular fibres in different directions on the basis of the lateral quills. This muscle depresses the tail, and appears also, from its attachment to the ligament of the quills, to be capable of converging them.

The third arises from the posterior edge of the anterior part of the pubis, and the tendon covering the lower part of the belly, and is inserted on the base of the ligament which unites the lateral quills. When this muscle acts finely, it brings the tail downwards and to one side; if, with its fellow, it depresses the tail directly; but at all times it tends to spread the quills of the tail.

The fourth is the motor lateralis coccygis of Vie d'Azir, which describes its origin different from what we have observed it to be. It arises from the last transverse process of the sacrum and the first of the coccyx, and it turns round to be inserted in common with the preceding muscle upon the root of the ligamentous substance which connects the lateral quills. It moves, when acting alone, the tail to one side; but combined with its fellow and other muscles, unloads the quills of the tail in the manner of the flicks of a fan.

The fifth muscle is in part covered by the third; it is attached to the whole of the posterior margin of the pelvis, except the extreme portion of the pelvis, and in the gooff spreads even upon the parietes of the belly round the anus; it then proceeds to be inserted, along with the depref coccygis, on the under part of the caudal or tail bone of the tail. Its office is, with its fellow and the deprefor, to lower the tail.

The sixth is the cruro-coccygis of Vie d'Azir; it arises by a thin tendon from the inner and back part of the thigh bone, where it is conjoined with one of the muscles of the thigh. It is inserted, along with the other muscles of the tail, into the under part of the caudal bone. This muscle draws the tail to one side; but when its action is combined with its fellow, it is the most powerful flexor or deprefor of the tail.

The muscles of the trunk deviate more from the structure of mammalia than the muscles of birds do in general, and have been but very imperfectly described by Guiver and others.

The pectorales are merely two slips of muscle, which descend from the next transverse processes upon the first and second ribs.

The triangularis flavi takes its origin from the superior corner of the sternum and the four superior ribs, where they join this bone, and is inserted into the moveable angles of the four superior ribs after the first. It comprises the superior part of the thorax, and thus brings forwards the lower end of the sternum; it is, therefore, a muscle of expiration.

The abdominal muscles consist of three layers. The first represents the obliquus externus, although its fibres are arranged transversely. It arises from the edge of the ilium and pubis by a very thin tendon, and from the lower edges of the ribs, by distinct tendinous processes, and is inserted into the side and lower edge of the sternum, and the middle line of the belly, as far as the umbilicus. From this muscle passing over the moveable angles of the ribs, its action influences the whole cavity of the body; for at the same time that it compresses the abdomen, it raises the anterior part of the sternum, by drawing the posterior part backwards, and thus dilates the thorax, and becomes a muscle of inspiration; by this means the effluence we have already referred to is produced upon the abdominal airs-cells.

The second is the obliquus ascendens; it is made of two portions, the one a little overlapping the other; the anterior is analogous to the rectus abdominis, and arises from the pubis and middle line of the belly; the other portion arises from the edge of the ilium and lowest rib. The fibres of each portion ascend in their proper directions to be inserted on the lower edge of the sternum, and the tendon filling the
the space between the ribs and the sternum. This muscle, like the preceding, diminishes the abdomen, and dilates the anterior part of the thorax.

The third layer answers to the transversalis abdominis. It proceeds from the oblique margin of the abdomen to the middle line, where it meets its fellow. They consist of separate fasciculi at the superior part; and the fibres are collected round a point in the centre, where the yolk passed into the belly of the chick.

There is a very thin layer of muscle, which crosses the lowest part of the belly; it is situated superficially, and lies over several of the muscles of the tail. In the goose it arises from the ischiium, where that bone joins the pubis; and in the fowl it is only attached by cellular membrane to the surface of the muscles of the thigh. It is inserted, in both cases, on the side of the anus, which it seems designed to dilate.

We have observed in the fowl two very slender fasciculi of muscle to descend from the side of the rectum, one to the ligament supporting the quills of the tail, the other to the inside of the pelvis. They are both probably intended to produce the eversion of the tailbone during copulation.

The muscles belonging to the wing do not differ in their arrangement and structure from those of the anterior extremity of mammalia so much as might be supposed, considering how little these members resemble each other in their functions.

The latissimus dorsi arises only from the spines of the dorsal vertebra; it resembles, however, the muscle of the same name in mammalia.

A muscle, analogous to the inferior portion of the trapsezius, is observed at the shoulder. It comes from the spinous processes of the three last cervical and all the dorsal vertebrae, and is inserted into the inner and back part of the fork and posterior edge of the scapula. We have not perceived the distinction of this muscle into two parts on the shoulder, as stated by Cuvier.

The serratus major anticus is only inserted into the point of the scapula. This muscle has been called by Vic d'Azir the subscapularis.

The coqo-scapularis of Vic d'Azir goes from the first ribs to the neck of the scapula. It appears to be analogous to the pectoralis minor of the human subject.

The rib lobesides is not divided into major and minor. It arises, as usual, from the spine, and is inserted in the posterior edge of the scapula.

A muscle, analogous to levator scapula, arises by three slips from the transverse processes of the last cervical vertebra and the first and second ribs. It is inserted into the middle of the scapula, which it elevates and draws backwards. The motions of the scapula are here very limited from its mode of connexion with the neighbouring bones; and its rotation is restrained by a ligament which joins the point of the scapula with the dorsal spine. It is requisite the bones of the shoulder should be kept very steady during flight.

There are three pectoral muscles.

The pectoralis medius of Vic d'Azir might be called the levator alae. It is affixed to the fore part of the body and keel of the sternum, the side of the clavicle, and the membrane which fills the interspace between those bone and the fork. It tends its tendon over the head of the scapula through the pulley formed by all the bones of the shoulder, to be inserted on the external tuberosity of the head of the humerus. By means of the pulley it elevates the humerus, and consequently the wing; and from occupying the lower part of the shelf, the weight is kept in the situation most convenient for the bird during flight.

The pectoralis minimus of Vic d'Azir, or depressor alae minor, arises from a portion of the sternum behind the articulation of the clavicle, and from the inside of the femoral extremity of the clavicle. It is inserted under the head of the humerus; depresses the wing, and brings it close to the body.

The subclavus is extended from the inside of the femoral extremity of the clavicle to the adjoining part of the inner surface of the sternum. It is impossible to conceive the use of this muscle, unless it be to strengthen the joint, as its attachments are incapable of motion towards each other. There are muscles analogous, as much as the form of the bones will permit, to the subscapularis, teres major and minor, supra scapularis, and infra scapularis.

Cuvier describes two little muscles which come from the inside of the clavicle to the head of the humerus. We have observed a muscle in the fowl which appears to correspond to one of these; it arises from the inner surface of the clavicle, and its joint with the sternum, passes over the first rib, and is affixed to the top of the inner tubercle of the head of the humerus. It rotates the wing inwards, when it has been spread in flight. The lower edge of this muscle, and the inside of the teres major, produce a most delicate tendinous cord, or fibre, which defends on the back of the upper arm, and is lost among the ligaments of the quills below the elbow. The effect of this, if any, is to bring the wing nearer the body, and perhaps spread the quills.

The deltoideus is small, and of two portions. One arises from the fork at the top of the shoulder, and sends a small tendon to the aponeurotic expansion of the fold of the wing. This tendon, as it proceeds along the edge of the expansion, acquires exactly the structure and the elasticity of the ligament nuchae; it then becomes a common tendon, pales over the end of the radius, and is inserted into the style of the metacarpal bone. It bends the fore arm, extends the hand, and, in consequence of the elasticity of the tendon, contracts the flat part of the fold of the wing. This portion of the deltoid has escaped the observation of Cuvier and other writers, although the structure of the tendon is one of the most extraordinary circumstances in the anatomy of birds. The remaining portion of the deltoid is analogous to the same muscle of the human subject, and brings the wing upwards and backwards in flight.

The muscle which represents the biceps flexor cubiti, takes its origin from the end of the clavicle, where it joins the fork; and from the sharp tubercle of the humerus, which is analogous to the coracoide process, the chief part of the muscle proceeds to be inserted into the inside of the neck of the radius; but as it descends, a small portion goes off, and is expanded in the fold of the wing, and attached to the outer side of the arm. This expansion of tendon corresponds to the aponeurosis of the biceps muscle of the human subject; but instead of lying close to the fore arm, it is spread out and covered with the common integuments.

The brachiolus internus is very small, being only attached
to the fore part of the end of the humerus between the condyles.

There is a short muscle which arises from the ligament that
conjoins the clavicle and the head of the humerus, and is in-
serted upon the flat external surface between the two tuber-
cles. It is an elevator of the wing. It is peculiar to birds, and
has not yet been described.

The extensor cubiti consists of two portions: the one, called
by Vic d'Azir the extensor longus, comes from the junction
of the fork and feapula; the other arises in a forked man-
er from the posteriour surface of the humerus, and is the
extensor brevis.

The aternus minor of Cuvier is the external and lower
part of the extensor brevis. It is a distinct muscle in the
feowl, though not in the goos.

Although the bones of the fore arm do not admit of pro-
nation and supination, the muscles which perform these mo-
tions in other animals, exit in birds, and answer different
purposes.

The supinator resembies that of the human subject. The
longus terminates on the style of the metacarpal bone, and
serves both to bend the arm on the humerus, and extend the
metacarpus, or lower part of the wing. The supinator bre-
vis bends the fore arm. The place of the pronator teres is
supplied by two muscles very much like it in shape; they act
as flexors of the fore arm. There is a triangular muscle
which in some degree fills the situation of the pronator qua-
dratus; it arises from the end of the ulna, and sends a broad
tendon over the carpus to the highest feabrous surface on the
metacarpal bone. It extends the hand, or lower part of the
wing, giving it at the same time a degree of pronation, which
the carpal joint permits, in order to render the wing con-
cave when it is extended.

The flexor, and extensors, situated on the fore arm of
birds, resemble in shape and arrangement generally those of
the human subject; but commonly have their ues changed,
and often even reversed, in consequence of the difference
in the figure of the bones and the plan of their articu-
lations.

The muscles which correspond in situation to the exten-
sor carpi ulnaris, performs the motion which is called flex-
ion of the lower part of the wing.

There is a strong muscle arising from the external condyle
of the humerus, and implanted into the side of the ulna op-
oposite the radius, for almost its whole length. It raises
the fore arm on the radius, and seems to be the muscle called
by Vic d'Azir flexor profundus.

The muscle analogous to the extensor pollicis longus, has
its tendon inserted into the style of the metacarpus, and
into the fold abductor. It extends the hand on the fore
arm.

The extensor pollicis comes from the internal condyle, is
attached to the lower carpal bone, and sends a tendon to the
base of the first joint of the principal finger, bends the
hand, but extends the finger.

The flexor digitorum profundus arises from the inner surface
of the ulna; its tendon passes over a little pulley upon the
metacarpal bone, and terminates on the end of the last joint
of the principal finger, which it extends, but bends the
wing.

The extensor communis digitorum and indicat or arise from
the external condyle and inside of the radius. They send
tendons to the first and last joints of the principal finger,
which they extend.

The fingers of birds are furnished with many short mus-

cles; and notwithstanding they are very palatable, feem to
have escaped the observation of Cuvier and other anato-
mists.

The flexor brevis pollicis comes from the side of the head
of the metacarpal bone to the flat surface of the bone of the
thumb. The extensor brevis pollicis proceeds from the trian-
gular surface of the metacarpus, behind the joint, to the base
of the thumb. The abductor pollicis is extended between the
style of the metacarpal bone and the outer edge of the bone
of the pollex. The adductor pollicis is extended between the
branch of the metacarpus and the bone of the thumb.

The extensor, or extensor brevis indicus, is extended all along
the radial edge of the metacarpal bone, and is spread upon
the root of the first joint of the principal finger. It brings
the finger into a line with the metacarpus. The adductor
indicis comes from the ulnar side of the large branch of
the metacarpus to the root of the first joint of the fore finger.

The abductor indicis, or extensor brevis indicus, is extended all along
the radial edge of the metacarpal bone, and extends the
rest of the finger.

The muscles of the lower extremity are very numerous in
birds, and pollics several peculiarities, notwithstanding the
motions of this member are so simple. The articulation of
the femur with the pelvis permits the thigh to move freely
and backwards, but does not allow it to be carried
under the body, or far outwards. The motions of all the
other joints of the inferior extremity are merely flexion and
extension.

In consequence of the form of the pelvis, the il发生变化, the
phenomena of the extensor femoris and quadratus
lumbarum do not exist in birds. Cuvier also states that the
periformis and geminis is to be wasted; but we have seen a
little muscle which paffes from the projection above the sce-
tabulum to the trochanter, which appears to supply the
place of the periformis.

The obturator internus is generally a large muscle, and
paffes over a pulley at the fore part of the foramen ovale,
where it receives two little flaps analogous to the geminis.
They are inserted into the outer part of the trochanter.

There are three glutaeal muscles, as in quadrupeds. The
glutus maximus is attached by a broad thin tendon to the
prominence along the dorsum of the ilium, covers the outs
side of the thigh, and contributes to form the extensor ten-
don on the side of the knee. The anterior part of this mus-
cle corresponds to the tendon the geminis. The glutus
medialis occupies its usual situation. The glutus minimus is
a small muscle, so much placed on the anterior edge of the
ilium, that Vic d'Azir considered it (perhaps not impro-
perly) as the iliacus. It brings the thigh directly forwards,
and rotates the knee inwards.

The muscle analogous to the quadratus femoris is large
and of a pyramidal shape. It retracts the thigh.

The extensor muscles of the leg resemble those of mam-
malia. The vastus internus sends its tendon to be distinctly
attached to the head of the tibia. The tibialis longus is an
extensor of the leg on the thigh.

There are three flexors of the leg: one, which, although
single, is, from its insertion into the back of the fibula, ana-
logous to the biceps of the human subject; another, on the
inside, is attached to the tendon of the extensors of the heel,
as well as to the tibia. This muscle might be called either
gracilis or femorallephasus, for it resembles both. The third
flexor is in the middle. It comes from the ischium; and as
it defecns, it receives a broad flip of muscle from the back of the femur. It is inserted on the back of the tibia, and the tendon covering the extensors of the heel.

There is a large muscle on the inside of the thigh, which supplies the place of the *trochlea*. It performs adduction, but it is also employed in carrying the limb backwards.

A muscle, which Cuvier appears to reckon as the second adductor, arises from the back of the ischium, and is inserted into the middle of the femur in company with the *ceratoccygis* muscle. It retracts the limb.

The muscles for extending the heel, and consequently the lower part of the leg of birds, differ in many respects from the *gastrocnemius* of mammalia. The tendo achillis is produced by three portions of muscle; and, after passing over a moveable cartilaginous pulley which is placed on the heel, it spreads on the sides of the metatarsal bone. The first portion arises from the inner and outer part of the joint of the knee, and is connected for some way with another muscle, which lies on the outside of the joint. The second portion is the infrapatellar, and from the back of the internal condyle of the femur. The third is a very strong muscle arising by tendons from the outside of the thigh bone, just above the condyle. These three heads appear to be the *external gastrocnemius*.

The *flexor* is represented by a muscle which arises from the outer part of the knee-joint, from the upper part of the tibia, and from the fore part of the fibula. It is inserted into the pulley on the heel, and sends a tendon to join that of the flexor of the first phalax of the toes, and therefore it bends the toes; while it acts on the heel.

There is also a muscle which appears to supply the place of the *planarias*. It comes from the back of the head of the tibia, and affixes its delicate tendon to the middle of the moveable pulley of the heel.

The *tibialis anticus* arises by two heads, and is inserted into the fore part of the upper end of the metatarsal bone. It bends the joint of the heel.

There is a short *peroneal muscle* which is inserted into the outside of the metatarsal bone. It merely bends the joint.

The other muscles situated along the legs, are for the flexion and extension of the toes. The *extensor longus digitorum* exhibits no peculiarity, except that its tendon goes through a hole in the end of the tibia. There is no *long extensor* for the back toe.

The *flexors* of the toes are very complicated; they may be divided into the *flexor sublunis* and *flexor profundus*. The first is composed of several portions; two of these are *peroneal* muscles, and send their tendons to the first joint of the internal toe, and the second phalanx of the middle toe; the other two portions of the *flexor sublunis* arise, one from the outside of the fibula, and the other from the back of the joint and internal condyle of the femur. The one on the fibular side is joined by the tendon of the *aetorhynchos femoralis flexorius*; a muscle, which arises from the spine of the pubis, runs along the thigh, and sends its tendon through a sheath that runs over the ligament of the patella, to arrive on the fibular side of the leg. The two portions of the *flexor* after this, unite, separate, and unite again, and at last produce three tendons, of which two go to the first phalanges of the internal and middle toes, and the third to all the joints of the outer toe except the last. Those tendons which pass beyond the first joint, are *perforating* as well as *premumare*.

The *flexor profundus* arises as two distinct muscles; the one from the back of the femur, and the other from the back of the bones of the leg. The two tendons unite on the back of the metatarsal bone, and send off tendons to the last phalanges of the toes, which perforate those of the *flexor sublunis*.

All the *flexor tendons* are included in a tendinous sheath, as they pass along the back of the metatarsus; and some of them go through the moveable cartilaginous pulley of the heel, and others run in sheaths formed in the cartilage which covers the top of the metatarsal bone.

The circumference of the flexion of the toes accompanying that of the other joints of the lower extremity of birds, was long ago observed by Borrelli, and attributed to him by the connexion the flexors of the toes have with the upper parts of the limb, by which they are mechanically dextre. This explanation has been controverted by Vic de'Azur and others, who have referred the effect to the irritability of the muscles. The opinion of Borrelli appears, notwithstanding, to be well founded; for not only the tendon of the acceller flexor pilling round the knee, but the course of the flexor tendons over the heel and along the metatarsus, must necessarily caufe the contraction of the toes, when either of these joints are bent; and if the phenomenon was not produced on mechanic principles, it would be impossible for birds to exhibit it during sleep, which they do, or to prove the effect on the limb of a dead bird, which only a thing is more easy. The utility of this contrivance is great in all birds, but particularly so to those reptious tribes, which by this means grasp their prey in the very act of pouncing on it; and it is still more useful to those birds which perch or roost during their sleep, as they could not otherwise preserve their position when all their voluntary powers are suspended.

There are six long small muscles lying on the metatarsal bone; they are long and held marked in those birds which walk most. Two of these are on the profundus surface; one goes to the base of the external toe, which it *adducit*; the other is inserted into the root of the back toe, which it *bends*. On the anterior part of the metatarsus there are four muscles; the first *extends* the back toe; the second goes to the base of the first toe, and *adactylit*; the third is spread on the root of the middle toe, which *extends*; the fourth lies along the outside of the metatarus, perforates the end of the bone, and is implanted into the inside of the external toe, and *adactylit*.

**Brain.**

This organ exhibits several deviations from the structure of the brain of mammalia, which afterwards appear in a more marked manner in the inferior classes of animals. Accordingly, in the scale of existence, or with respect to sensitive or mental faculties, the rank of birds is clearly fixed below that of mammalia, and above that of other animals. The rules which have been established to determine the degree of intelligence poised by species or individuals, according to the proportion the brain bears to the whole body, or other parts of the nervous system, do not appear to applicable in birds as in mammalia. It is, however, very difficult to appreciate the capacity of birds, as they are so much the fables of infancy, that it is often impossible to discover whether their actions arise from the impulse of this principle, or depend upon the recollection and association of external sensations. The largest birds generally have the smallest proportion of brain to the whole body; and some of the small birds have the proportion of brain to great, that they would, agreeable to the rules laid down, exceed in mental endowments man himself; for instance, the brain of the *canary bird* is equal to the one-fourth of the whole body; and in the human subject it is only the one-twenty-fifth part. The diameter of the
the brain, in relation to the medulla oblongata, has been ascertained only in a few species of birds, in which it has been observed as follows:

<table>
<thead>
<tr>
<th>Medulla oblongata</th>
<th>Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falcon</td>
<td>13</td>
</tr>
<tr>
<td>Owl</td>
<td>14</td>
</tr>
<tr>
<td>Duck</td>
<td>10</td>
</tr>
<tr>
<td>Turkey</td>
<td>12</td>
</tr>
<tr>
<td>Sparrow</td>
<td>7</td>
</tr>
</tbody>
</table>

The brain of birds is invested with the same coverings which are described in mammals.

The form of the cerebral maps is very different from that of the human brain, which chiefly arises from the optic thalamus being visible externally. The hemispheres are therefore proportionately diminished. They assume the shape of a heart with the point turned forwards. On the lower part of the side of the hemisphere there is a depression which corresponds to the fossa of Sylvius, and is the only appearance of a division into lobes. Underneath the hemispheres the thalami nervorum opticorum are found, as two distinct tubes, each equaling in magnitude a lobe or division of the brain. They unite before the infundibulum, and send off the optic nerves; there are, therefore, six parts, or principal eminences, of the brain of birds, visible externally: the two hemispheres, the two thalami, the cerebellum, and the medulla oblongata. There are no convolutions, or winding impregnations, on the surface of any of these parts, except the cerebellum, which is transversely furrowed, but not divided into two lobes.

The medulla oblongata is round, and smooth on the under surface, being unarmed with the eminences called pars Varolii, corpora pyramidialis, and corpora olivaria.

On separating the hemispheres a little, it is perceived that they are united at their lower part, or over the third ventricle. The junction is effected by white medullary substance, which afterwards spreads in a radiated manner, on the surfaces of the hemispheres that are opposed or applied to each other, almost as high as the top of the cerebrum. In reality, this medullary union of the hemispheres corresponds to the fornicis, and can, like it, be traced to the anterior commissure in the third ventricle; but instead of being connected to the fiesium lucidum and corpus callosum, as these parts do not exist in birds, it spreads on the inner surfaces of the hemispheres, and thus contributes to form the internal parietes of the lateral ventricles.

Behind the radiated partition of the hemispheres, and without the third ventricle, the posterior commissure presents itself, and consists usually of more than one white line connected together by a white fibre, like a nerve passing obliquely across. The vault of the canalis medius is also visible, and is composed in part of a white medullary band; and behind this, another white cord runs across, which is the fourth pair of nerves at their origin.

The lateral ventricles are not prolonged posteriorly, nor possess what is called the reflected horn; the great and lesser hippocampus have therefore no existence.

The corpus striatum fills the ventricle almost entirely, projecting from the external side of it in the shape of a kidney. It does not exhibit on a section regular or strongly marked striae.

There are no tubercula quadrigemina.

The pineal gland rests upon a flat surface; it is very small, and enveloped in pia mater, and covered by a large vein. The plexus choroides also at this place divides into two tusks, or bunches, which pass into the lateral ventricles by two foramina in the back of the internal parietes.

The third ventricle possesses its usual situation between the thalami and its slit-like shape, and communicates with the canalis medius under the posterior commissure, and with the infundibulum behind the anterior commissure.

The infundibulum and pituitary gland are both large in proportion to the other parts.

The thalami nervorum opticorum contain each a ventricle, which opens into the canalis medius; therefore, there may be six ventricles reckoned in the brain of birds.

The fourth ventricle exhibits no peculiarity.

There are no eminences corresponding to the corpora quadrigemina: Cuvier has described four round eminences between the thalami and corpora frata, which are particularly plain in the alcthes. These are analogous to the tubercules of the brain of fishes.

The olfactory nerves arise, in birds, from the very points of the hemispheres, and often have a degree of enlargement at their origin, which resembles the olfactory tubercles of fishes. There are eight other pair of cerebral nerves, which have nothing very peculiar in their origin.

See Plate X. of the Anatomy of Birds. Fig. 1 presents a lateral view of the brain of the goose abstracted from the head; a the hemisphere, b the depression analogous to the fissura Sylvii, c the optic thalami, d the cerebellum, e the medulla oblongata, f the beginning of the medulla spinalis, g the infundibulum, h the pituitary gland. The different nerves are indicated by numbers, as they arise, from 1 to 9.

N° 1. the olfactory nerve, N° 2. the optic, N° 3. the oculo-muscular nerve, N° 4. the patheticus, N° 5. the trisacial nerves, N° 6. the nervus abducens, N° 7. the seventh pair, or auditory, N° 8. the eighth pair, N° 9. the hypoglossal nerve.

Fig. 2. of the same plate, shews the internal parts of the brain, as they are exposed without division, simply by pulling the hemispheres to each side, and drawing the cerebellum a little back: a the two hemispheres, b the cerebellum, c the medulla oblongata, d the radiated white lines seen arising from the junction of the hemispheres, and forming part of the parietes of the lateral ventricles, f the transverse medullary cords corresponding to the posterior commissure, g the white band of the roof of the canalis medius, b the fourth pair of nerves crossing behind it, i the pineal gland obscured by the venous galei and the plexus choroides, k the latter passing into the ventricle.

The third figure of the tenth plate of the Anatomy of Birds, gives a view of the interior of the ventricles of the thalami nervorum opticorum, and the third ventricle: a the hemispheres laid down very much to each side, by which the white partition is ruptured, and the third ventricle brought into view, they are also pulled forwards to expose the thalami; b the cerebellum; c the medulla oblongata; d the two optic thalami, that on the right side is cut open to shew the ventricle and its communication with the canalis medius; e the tract of the third ventricle and canalis medius, along which a little is puffed into the fourth ventricle; f the anterior commissure, which seems to produce the medullary radii that unite the hemispheres.

Nerves.

The olfactory nerve has been already mentioned to pass along a canal, or groove, in the upper and inner part of the orbit, to reach the naso cavity; in which its distribution will be pointed out in describing the organ of smell.

The optic nerves pursue their ordinary course, as in other animals.

The distribution of the third, fourth, and fifth pair of nerves, is almost the same as in mammals.

The branches of the fifth pair bear great resemblance to the
the same nerves in quadrupeds. They are distributed to the bill, and are therefore the nerves of the organ of touch in birds, under which head they will be farther noticed.

The portio dura of the seventh pair, or the facial nerve, is too small in birds, that it can hardly be discovered. Its offices are not required, in consequence of the structure of the parts of the face in these animals.

The portio mollis is remarkably soft; when it arises from the brain, it is a tender pulp, of a reddish colour.

The par vagum, or pneumogastric nerve of the eighth pair, sometimes pales out of the cranium in two or three filaments, which afterwards rejoin. On leaving the skull, this nerve communicates with the lingual and glossopharyngeal nerves. The par vagus, after this, pales as a distinct strong cord along the neck, in company with the jugular vein, and descending into the chest, forms the cardiac and pulmonary plexuses, as in mammalia. The two nerves unite behind the heart, and proceed along the oesophagus, to terminate in anastomoses with the great sympathetic nerve. We have not observed the recurrent branch of the eighth pair.

The glossopharyngeal nerve of the eighth pair makes its exit from the cranium through the posterior foramen lacerum in two filaments, which immediately unite to form a quadrangular ganglion, which sends off a small nerve to the anterior muscles of the neck, and another branch to anastomose with the par vagus; the nerve then descends along the oesophagus, and divides into two branches, of which one passes upwards to the muscles of the os hyoideum, which include it between them, and the other furnishes a branch to the lingual nerve, and afterwards is expanded upon the oesophagus.

The hypoglossal nerve is small where it pales through the condyloid foramen of the cranium; croffles and partly unites with the par vagus, at which place it detaches a filament towards the thora, which seems analogous to the descendens non. The trunk of the hypoglossus goes forwards under the horn of the os hyoideum, and divides into two principal branches, which are distributed to the tongue.

The cervical, dorsal, lumbar, and sacral nerves, arise from the medulla spinalis exactly as they do in quadrupeds, and only vary in their number, which is determined by the number of vertebrae belonging to each region of the spine.

The phrenic nerve is not found in birds, in consequence of the absence of the diaphragm.

The intercostal, or great sympathetic nerve, is described as entering the cranium by the foramen lacerum poebeus. It unites with the fifth and sixth pairs, and produces a lenticular ganglion below the skull, which communicates with the eighth and ninth pair of nerves. The appearance of the sympathetic nerve is, however, foot bolt on the neck; for the cervical nerves form their anastomosis with each other in the vertebral canal, from which a nerve is sent out between each vertebra to supply the muscles and integuments of the neck. These nerves are remarkably large. On coming into the thorax the great sympathetic forms a branch to the pulmonary plexus of the par vagus; it anastomoses also with the brachial plexus; and below the second rib, the sympathetic commences a series of ganglia, which are very conspicuous between each of the succeeding ribs, but become less visible along the remaining part of the spine. These ganglia are central points for the union of a number of nerves. They receive filaments from each other, which pass over the heads of the ribs; they communicate backwards with the spinal nerves; they detach on the outside the intercostal nerves, which are large, and besides supplying the intercostal spaces, give branches to the muscles and integuments upon the sides of the body; they finally send off filaments anteriorly, which anastomose with each other on the side of the dorsal spine, and form cords, which become the plexus of the nerves. In this manner there is produced on each side of the dorsal spine a reticulation of nerves which inlets in its meshes the heads of the ribs, and has a striking effect. The first dorsal ganglion unites with the brachial plexus and the cardiac plexus of the par vagus.

The splanchic nerves, after being formed by the anterior branches of the sympathetic, pass to the roots of the principal arteries of the vasa. The chief of the celare artery produces a plexus round the trunk of this vessel, and where the artery is divided, there are one, two, or three enlargements, which are analogous to the splanchnic ganglia, and the nerves which depart from these, include the arteries in a reticulated manner, and represent the solar plexus.

There are similar plexuses on the other chief arteries of the trunk, which correspond to the superior and inferior mesenteric and renal plexuses, &c.

The nerves of the splanchnic plexus accompany the branches of the celare artery to the oesophagus, spleen, liver, and pancreas, around which they continue to form numerous anastomoses, that may be compared to the flumachic, splenic, hepatic, and pancreatic plexuses.

The nerves of the wing more nearly resemble those of the superior extremity in mammalia, than Cuvier has represented. The brachial plexus is produced by the two half cervical and first dorsal, and not, as he has stated, by the last cervical and first dorsal nerves. The union of these three branches gives rise to three others, which are distributed in the following manner:—The first is a very fine filament, which runs down on the inside of the arm, and is lost about the internal part of the elbow. This is analogous to the internal cutaneous nerve. The second is a large cord; it gives off a very large branch, which divides into many others, for the supply of the pectoral muscles; it sends several smaller branches to the muscles under the clavicle, and about the joint, and then proceeds to the inner edge of the biceps muscle, along which it descends to the fold of the arm, after giving some large muscular branches. Before it reaches the joint, it divides into two branches; one of which is analogous to the ulnar nerve, and the other forms a disease in nerves which are similar to the median and musculo-cutaneous. The median dips down amongst the muscles on the middle of the fore arm, to which it gives branches, and afterwards runs along the interosseous space, pales under the annular ligament of the carpus, and is distributed to the short muscles of the digit. The branch analogous to the musculo-cutaneous nerve, is expanded upon the muscles on the upper edge of the radius.

The ulnar nerve, although it appears to be incorporated with the median on the upper arm, can be easily separated from it and traced to its proper origin in the brachial plexus. After this nerve leaves the median, it turns over the end of the foramen to get upon the edge of the ulna. It gives filaments to the muscles in this situation; but its chief branch runs down superficially upon the ligaments of the quills in company with the vein, and goes ultimately to be lost upon the ulnar edge of the hand.

The third cord furnished by the brachial plexus, supplies the place of the radial nerve. It detaches several filaments to the muscles on the inside and back of the scapula. It gives off also the articular nerve, and then winds round the humerus between the extensor muscles, to which it furnishes some large filaments. On coming to the outside of the humerus, it sends a branch between the integuments of the
of the wing. The nerve now turns round the neck of the radius, beneath the muscles, and forms two branches; of which one passes under the muscles to the outer side of the ulna, along which it runs superficially to the hand; the other branch passes on the radial side, but more deeply amongst the muscles, goes under the annular ligament of the carpus, proceeds between the branches of the metacarpus, and is finally lost on the back of the digit.

Although Cuvier has given a more accurate description of the nerves of the lower extremity, than of those of the wing, it nevertheless needs correction in several particulars, which we have supplied.

The obturator and femoral nerves arise from the same plexus which is formed by the two last lumbar nerves, by a communicating branch from the first sacral pair. The obturator nerve passes through the upper part of the foramen ovale, and is distributed to the muscles around the hip joint, especially the adductor. The femoral nerve passes out of the pelvis in company with the artery, over the upper edge of the ilium. It divides into three branches, which are divided amongst the muscles and integuments on the anterior and inner part of the thigh. Some of these filaments are long, and defend superficially for a considerable way upon the limb.

The ischiadic nerve is composed of the five superior sacral nerves; and as soon as it departs from the plexus, even within the pelvis, is easily separable into its primary branches. Immediately after it passes through the ischiadic foramen, it sends filaments to the muscles on the outer part of the thigh; it then proceeds under the biceps muscle, along the back of the thigh, about the middle of which it becomes divided into the tibial and the peroneal nerves.

The tibial nerve, even before it arrives in the ham, separates into several branches, which pass on each side of the blood-vessels, and are chiefly distributed to the muscles on the back of the leg. Two of these branches, however, are differently divided of: the one accompanies the posterior tibial artery down the leg, passes over the internal part of the pulley, and is lost in small filaments, and a few branches of the nerve, on the inner side of the metatarsus; the other branch runs down on the peroneal side of the leg, along the deep seated flexors of the toes, passes in a fibrous sheath formed for it on the outer edge of the moveable pulley of the heel, and proceeds under the flexor tendons along the metatarsal bone, to be distributed to the internal part of the two external toes.

The peroneal nerve is directed to the outer part of the leg; it dips in above the gastrocnemius muscles, and runs through the same ligamentous pulley that transmits the tendon of the biceps muscle; it then detaches some large filaments to the muscles on the anterior part of the leg, under which it divides into two branches, which proceed close together, in company with the anterior tibial artery, to the fore part of the ankle joint, at which place they separate: one passes superficially over the outer part of the joint; the other goes first under the transfere ligament which binds down the tendon of the tibialis anticus muscle on the tibia, and then over the inner part of the joint, below which it divides into two branches, the one is distributed to the inner side of the metatarsus and the tibial side of the pollex and to the next toe; the other turns towards the centre of the metatarsal bone, and penetrates the tendon of the tibialis anticus just at its insertion, and then rejoins the branch of the peroneal nerve it accompanied down the leg. They continue their course together again in the anterior furrow of the metatarsal bone; and at the root of the toes, separate once more, and proceed to the interfaces of the three anterior toes, and each divides into two filaments, which run along the sides of the toes to the nail.

**Organ of Touch.**

As the sense of touch is bestowed upon animals to enable them to discern the forms and states of aggregation of external matter, it refines more especially in the extreme parts of their bodies, and when most perfect, exists in some members which is constructed for including or taking hold of extraneous substances. There is no part of the body of birds capable of conveying an accurate impression of touch, but the feet and the bills; their upper extremities and tail being simply instruments of motion. Different species enjoy this in different degrees, and poise it more or less in the bill or feet, in proportion as they employ these parts in the pursuit or examination of their food; these being the only occasions on which birds exercise their functions of touch. The **cenfores, accipitres, and pafserines** tribe have most fehabition in their feet, while the **gralla and anferes**, especially those that have long or broad bills for feeling out their food, like the **juife, or duck**, possess a very great susceptibility of impression in their bills.

The organization of the feet of birds, as far as concerns their offices as instruments of touch, is similar to that of the digitated mammalia and reptiles. The skin on their lower surfaces is endowed with more than common vascularity, is largely supplied with nerves, and is elevated into those little regular eminences called **papille**, in which the sense of touch more immediately refines.

The structure, on which the feasibility of the bill depends, is different from the preceding. It consists in the magnitude and distribution of the fifth pair of nerves. These are divided, as in mammalia, into three branches, the **ophthalmic**, the **superior maxillary**, and the **inferior maxillary**.

The ophthalmic enters the orbit by a hole beside the optic foramen, pales for some way in an ocellous canal before it arrives in the nasal cavity, where it distributes some branches to the septum and turbinate, and to the external nare, and then goes on as two branches; one runs in the substance of the upper jaw, which it perforates at the end in many filaments, to terminate under the horny integument of the bill; the other pales between the membrane of the palate and the bill, and is lost in a number of fibres at the apex of the bill.

The superior and inferior maxillary nerves come out of the cranium by the same hole. The superior, after dispassing branches to the muscles in its course, is finally distributed to the lateral parts of the bill, which, if notched along the edge, as in some water birds, each denticulation receives several filaments. The inferior maxillary descends to the lower jaw, which it penetrates, after sending a branch to the integuments of the side of the bill; and running in the maxillary canal, sends filaments to the edge of the bill, and terminates, like the ophthalmic, on the apex of the lower mandible.

These nerves are of great size in the **goose, duck, &c.** in which they render the bill a very delicate organ of touch. See Plate X. in the Anatomy of Birds. Fig. 4 is the section of the head of a duck, made by dividing the organ of smell longitudinally, and by removing the bill and bone of the mandible, in order to bring into view the distribution of the fifth pair of nerves: a the ophthalmic nerve coming from the upper part of the orbit, and proceeding along the septum naif; b the branch which pales in the substance of the mandible, to be lost on the point of the bill, c the branch that runs on the membrane of the palate to the end of the bill; d the superior maxillary nerve dividing on the membrane of the palate, and sending its filaments to the denticuli on the side of the bill; e the inferior maxillary running...
The feathers with which the bodies of birds are clothed, render them less capable of receiving the more simple impressions of touch, than most other animals. They also serve to defend them against the excesses of temperature. The structure and mode of growth of these substances are considered in another part of the dictionary. See Feathers.

The cuticle of birds is remarkably thin, but resists generally in structure the epidermis of mammals. It is shed generally along with the feathers.

The rete mucosum is not observable, except in those parts which are surrounded by feathers, and possesses peculiar colours, as the cere and caruncles of the head, the feet, and bills; where it is of course found to vary in colour as those parts do.

The cutis is in most birds extremely thin and delicate in its texture, appearing often like a fine single lamina, instead of an intermixture of fibres as in mammals. It is, however, of some strength in the exter birds and the aceprures; it is thinned in the pappules. The external part of the cutis is never papillated, but when it covers the undersurfaces of the toes which are designed to receive the impressions of external bodies.

The muscles of the skin, in consequence of the size of the external coverings, are in general very evident, and particularly in those birds which move their feathers on the crest, neck, or tail, as the buphæus, cuculæs, herons, &c.

The following cutaneous muscles are common to all birds. TwoUf slowly slips, which arise from each side of the head behind the mentus auditorius, and go backwards to be lost in the integuments. A thin expansion of muscle along the anterior and lateral parts of the neck; it takes a longitudinal course, but is connected with some transverse fibres between the jaws; this muscle corresponds with the platysma myæder. There is a muscle, arising in a serrated manner from two or three of the lower ribs, and extending upwards to the axilla and outside of the shoulder. We have perceived, in the gooses, a very thin slip of muscle proceeding from the posterior part of the branch of the pubis to the skin on the under side of the knee; and Cuvier considers the red granular appearance under the skin on the back of the pelvis as mucular substance.

The functions of the skin of birds, as an organ of absorption and excretion, appear to be very imperfect. The clothing of feathers alone disqualifies it in a great degree for the performance of these processes. The skin favours and simple organization of the skin itself renders it probable that its secretory powers are but inconsiderable. It does not also possess those various glands which are so abundantly bestowed upon the skin of other animals for its preservation and defence against the operation of external influences. Birds are, however, provided with two peculiar glands for the purpose of furnishing an oily fluid, to keep the feathers in order and defend them against the effects of moisture.

The oil glands are two oblong or oval-shaped bodies, with one end more pointed than the other, and situated under the skin on each side of the famous processes of the cranium vertebræ. They approach each other, and touch at their point, which are directed backwards, and thus produce a common channel between them, the figure of a heart. They are covered by a strong dense white tissue, and their interior structure consists of a number of small tubes arranged in a radiated manner around a cavity, or canal, which runs nearly in the middle of the gland, into which they all open and discharge their contents, in the same way as the tubuli uriniferi do into the pelvis of the kidney. The middle canal leads to a papilla on the skin of the rump, and terminates in a simple foramen. It defies remark, that the tubes towards the circumference of the glands are soft and indistinct, and their contents liquid and pale colored; but before their termination, the tubes acquire more firmness, are a little separated into packets, their secretion becomes an opaque yellow, and of more consistence; thus affording an obvious and interesting view of the change which may be wrought upon secreeted fluids after their formation, while they are passing through their glands. The fluid produced by the glands on the rump of birds, although of an inconstant nature, is still not pure animal oil. It has more consistence, and is less affected by heat; which properties it principally acquires in the ends of the tubes, before they open into the common duct, as already mentioned. It is, however, sufficiently obnoxious to prevent the adhesion of moisture to the surface of the feathers. When birds make use of it, they turn their head round to the rump, and compress the glands with the bill, when a quantity of oily matter exudes, with which they beaten their feathers, arranging the barbs upon their shafts at the same time by means of the bill. These glands, as might be inferred from their use, are particularly large in the faviuam birds. See Plate X. in the Anatomy of Birds. Fig. 5. shews the oil glands of the duck of their natural size; a, the two glands; b, the foramina on the papilla, into each of which a bristle is introduced; c, the integuments reflected on each side to bring the glands into view. Fig. 6. of the same plate is a section of one of the oil glands somewhat magnified; a the canal in the centre into which the radiated tubes open; b, the external portion of the tubes; e, the interior extremities more distinct, and of a deeper colour.

Organ of Smell.

The shape and situation of the nares is used by naturalists as classic characters of birds; and therefore do not require particular consideration here. They consist of two slits, varying in the length and width, commonly placed on each side behind the base of the bill. There are no muscles provided for dilating and contracting their aperture, as in mammals.

The interior of the organ of smell is formed by a septum and three turbinate bodies, over which the pituitary membrane is spread.

The superior turbinate affixes in general the shape of a bell; it is formed of cartilage, and is attached to the os frontis and lacrymalis; it is hollow within, and divided by a light prominence into two apartments, which are continued for a little way in a tubular form; the external ends by a blind extremity behind the middle turbinate; the internal opens into the cavity of the nose. The superior turbinate is small in the pappules and gallina, somewhat larger in the faviuam, exceedingly in bulk in the crocoptées, and still more in the gnuves; and in the geol the it is greatest of all. According to the observations of Scarpia, the number of smell is exactly proportioned to the magnitude of this part of the organ; as it is upon it only and the septum that the olfactory serve is spread.

The middle turbinate has been likened by Scarpia to a cubiculate. It is connected on the external part to the cartilaginous plates of the maxes and the bone processes of the upper jaw, and inferiortly it is attached to the cartilaginous septum of the nose. It is composed of a cartilaginous lamina, which in the gooses makes two folds and an half; but in the geol it is compressed, and forms only one turn and an
half. Harwood has flated these turbinata to be membranous in the *Coelanthus* and *Albatross*; and Cuvier has observed them to be composed of bone in the *toucan* and *hornbill*.

The _inferior turbinatum_ is an ofens fold, continued from the pinna of the nares, and united on the other side to the septum. See Plate X. in the *Anatomy of Birds.* Fig. 7, exhibits the interior of the nasal cavity of the *goose*, the septum being removed; _a_ the canal through which the olfactive nerves pass to the nare; _b_ the cavity of the superior turbinatum; _c_ its internal tube; _d_ the external tube; _e_ the middle turbinatum; _f_ its deep or first winding; _g_ the second; _h_ two pins passed from the windings into the nasal cavity; _i_ the inferior turbinated bone; _k_ its junction with the septum; _l_ the cartilaginous appendix of the middle turbinatum; _m_ a pin introduced through the external naris; _n_ the posterior naris.

The _pinnae_ membrane is fine where it invells the superior turbinatum, and thicker and more villous over the middle one; it is covered with pores, which discharge mucus on its surface. The blood vessels on the interior of the nare are beautifully reticulated.

The _olfactory nerve_, as already described, arises from the point of the hemisphere of the cerebrum, and poises through an ofous canal to the superior part of the nasal cavity. On arriving there it breaks into a great number of filaments, some of which are spread upon the superior turbinatum, and others run about as far as on the septum nasi. See Plate X. in the *Anatomy of Birds.* Fig. 4. _g_ the nerve proceeding along the canal above the orbit; _b_ the appearance of the nerve on the septum of the *duck*; and Fig. 8. of the same plate exhibits _a_ section of the head of the *brun*, a bird with an acute fene of smell; _a_ the trunk of the olfactive nerve; _b_ its distribution on the superior turbinatum, which is very large; _c_ the middle turbinatum proportionately reduced in size; _d_ inferior turbinatum; _e_ its connection with the septum; _f_ the aperture of the external naris.

Scarpa made a number of experiments with different species of birds, in order to determine their capacity for discerning odours. He mixed various strong smelling substances with their ordinary food, which in tame were taken with indifferenoe, but in others the repugnance to the scented food was so great, that the birds peirished rather than eat it. He was thus enabled to form a scale of the different degrees of perfection in which birds enjoy the fene of smell, which accorded exactly with the extent of the surface allowed for the distribution of the olfactive nerves. The fcale he has laid is as follows: _gallinae_, _pavonis_, _picus_, _anseres_, _acetipotes_, and _gralle_.

*Organ of Taste.*

The fene of taste is so imperfect in most birds, that it might be doubted whether it existed at all or not. The form and motions of the tongue unite it for being applied to the superficies of substances; the glairy tenacious fluid, with which the surfaces of their mouths are bemearred, is not calculated for the solution of fapid bodies; and the shape and structure of the papillae of the tongue seem to render them nearly incapable of impreffion; and further it may be observed, that birds commonly swallow their food without examination, or a minute division of its parts.

The motions and internal formation of the tongue have been already discussed; it only remains, therefore, to notice the figure and integuments; but as these have been described by natural historians in almost every genus, it is only necessary to speak of them in a very general way at precent.

The _form_ of the tongue may be commonly guessed at from the shape of the bill, with which it corresponds in a certain degree. In the _gallinae_ and _pavonis_ it is an elongated triangular, the point being turned forwards; in the _gralle_ it is generally of the same figure, the triangle being however lengthened in proportion to the bill; the broad-billed birds, as the _favae_, _goose_, _&c._ have the tongue broad and round at the end.

The _parrot_ has a thick round fleshy tongue, not unlike that of mammalia.

Several birds have the tongue bilifid at the point.

The _African ostrich_ has a broad tongue, but fo short, that its existence has been often doubted. The _New Holland ostrich_ has a very thin small tongue, and nearly an equilater al triangle.

The _papillae_ or projecting points of the integument of the tongue are very various in their shape and arrangement. In most fpecies the tongue is smooth, except at its base, where it is furnished with sharp reflex papillae, which are commonly cartilaginous, and often covered with bone. In many birds there are processcs along the upper surface or the edge of the tongue, which are invested with a horny or ofeous substance. The _columba_ has cartilaginous fers along the edges of the tongue. The _toucans_ have fine hornv bristles along the sides, which give their tongue a resem bance to a feather.

On the lateral parts of the back of the tongue of the *flamingos* there are two rows of bony processcs, shaped like hooks, with their points turned backwards.

The _duck_, _goose_, _favae_, _&c._ have, besides sharp bristles and denticulations, some rows of little osseous plates with their thin edges turned toward the fauces.

Birds have frequently the edges of the posterior nares, and other prominent parts of the fauces furnished with reflected ficipulae, similar to those on the tongue; from which it is probable, that both are intended to affift in the action of swallowing the food, rather than to receive the impressions of fapid substances.

The _parrots_ is the only bird which appears to taste its food, and hence it poiffesses soft papillae, of which some are really fungiform.

It is probable, that the _humming_ birds poiffess the fenation of taste, as their tongue is flexible and tubulated, through which they suck; like insects, their fluid aliment.

*Organ of Hearing.*

Birds are unprovided with the _concha_, or that external projection of the ear which is observed in man and quadrupeds, for collecting the rays of sound; but to compensate for the want of it, some of the internal parts of the organ are formed upon a larger scale. The feathers are arranged in some species, however, around the meatus auditorius in such a way as to produce, in a degree, the effect of the concha. This is most observable in the *owls*, in which also the membrana tympani lies at the bottom of a cavity, which is lined by a reflection of the common integuments that forms folds something analogous to the projections of the human concha; and in the *white owlet*, there is a fquare membrane, which serves as an operculum to the anterior part of the cavity.

The _frame_ of the membrana tympani, or the bone which surrounds it, is more prominent in some birds than in others; but generally it does not project sufficiently to deserve the name of a canal. It is imperfect anteriorly, where the arterial bone is situated, to which the membrana tympani is in part attached. In the *white owlet*, however, the osseous frame of the meatus is completed by the bones of the head alone.

The _membrana tympani_ is always more or less of an oval figure. It poiffesses the same structure as in mammalia, but is very thin; the convex, or concave, surface, is external,
external, instead of pointing inwards, as in man and quadrapeds.

The cavity of the tympanum is irregular on the internal surface, and is widest at its outer part. Besides the usual foramina leading to the labyrinth and Eustachian tube, it contains three others which communicate with the cells of the bones of the cranium. These are widened into something like canals, where the holes open into them. The largest of the foramina is in the back of the tympanum, and leads to the posterior cells, and communicates above the foramen magnum with the cellular canal of the other side. The second opening is placed at the anterior part of the tympanum, and conducts to the cells on the lower and anterior part of the cranium. The third foramen is continued amongst the cells which surround the labyrinth. Thus the cavities of each tympanum have a communication with the interior of all parts of the cranium, and with each other, from which they might be reckoned as making only one cavity. The end of the articular bone also, where it contributes to form the parietes of the tympanum, has a foramen by which it derives its supply of air. The auditory cells of the cranium of birds are analogous to the mailbox of the human subject; but from their extent, multiply found much more. They are of the greatest magnitude in the unilateral birds of prey, and especially in the eagle; the gooseucker (coperma'la) has them also very large. They diminish in the other birds, in which the posterior canals have no direct communication with each other. They are little observable in the thrush; and the parrot appears to want them altogether, but in their place the cavity of the tympanum is enlarged posteriory.

The Eustachian tube is very large in birds; it is an offshoot canal, and terminates by a small aperture close to the one of the other side, within the fissure of the posterior nares.

The foramina, which lead into the labyrinth, are situated within a fossa. They do not merit the distinctions of foramen ovale and foramen rotundum, being both oval, and only separated by a small bony process.

The effuacula auditus are supplied by a single bone and some cartilaginous processes. The effuclum consists of a flake or pedicle, crowned by an oval plate, which is applied to the foramen that leads into the vestibule of the labyrinth. At the other extremity it becomes extended and united to two or three cartilaginous processes, which form a triangle that is attached to the membrana tympani.

The pedunculated bone of the tympanum is moved by one muscle, which comes from the occiput behind the ear, and penetrating the cavity, is affixed to the triangle that is connected to the membrana tympani. This muscle is a tenor, and draws the membrana tympani outwards. It is counteracted by two small tendinous cords that are extended to the internal parietes of the tympanum.

The labyrinth of the ear of birds consists only of the vestibule and three semicircular canals, and the renewal of the cochlea.

The vestibule is small in proportion to the other parts. The canals have been termed by Scarpa, from their graduation in bulk, canalis major, minor, and minimus. The largest is most superior, and has a vertical position. The smallest is situated horizontally. The canalis minor ascends upon the major, and opens into its side. They contain corresponding tubes of vascular membrane; and they also pollow the ampulla, on which the nerves are distributed in the same manner as in mammalia.

The place of the cochlea is supplied by a short ossicus tube, very lightly bent, and either blunt or enlarged at the extremity. Its interior is occupied by two small cylinders of fine cartilage, each a little twisted, and united at their origin and termination. They proceed from the ossicus bar, which separates the two foramina that correspond to the foramen ovale and rotundum. The fulcule, which is left between the cartilages, is dilated near the point, and accommodates the same branch of the auditory nerve which is sent to the cochlea in mammalia. This nerve spreads in fine filaments upon the united extremity of the cartilaginous cylinders. The tube is divided by the presence of the cartilages into two scales, which communicate with the vestibule and the foramen rotundum.

The struthious birds have the tube corresponding to the cochlea, very small in proportion to the other parts.

The auditory nerve is received into a fossa, and there breaks into five branches; one is the facial, or portio dura, and the others are sent to the semicircular canals and the tube. The facial nerve receives a filament from the par vagum, which traverses the ear, and is afterwards distributed to the palate.

Comparati has described two canals leading from the labyrinth of birds, which correspond with the aqueducts of the ear of mammals.

For the illustration of the organ of hearing, see Plate X. in the Anatomy of Birds, Fig. 9. represents a division of the posterior portion of the skull of the white owl (fririus sannen), which exposes both the parts of the tympanum and the labyrinth; a the membrana tympani, which is enclosed in a perfect frame of bone in this bird; b the cavity of the tympanum laid open on the other side of the head; c the pedunculated bone, or ossicum, in situ; d d d the semicircular canals; e the tube analogous to the cochlea; f the air-cells exposed by the division of the cranium. Fig. 10. shews the ossicum and the membrana tympani abstracted from their situation and magnified; a a the membrana tympani; b the flat head, or basis, of the ossicum; c the pedicle; d the extremity which unites with the cartilages, and forms the triangle that is connected to the membrana tympani. Fig. 11. exhibits a magnified view of a division of the labyrinth of the goose, in which the membranous parts and the distribution of the nerves are displayed: a the trunk of the auditory nerve; b the portio dura; c c c the three branches of the portio mollissima going to the semicircular canals; d the nerve of the cochlea running in the tuemus, and ramifying on the apex of the cartilages; e the offshoot part of the tube analogous to the cochlea; f the inner cartilaginous cylinder; g the fulcule between it and the superior, which is concealed from view by the nerve; h h b the three ampullae of the membranous semicircular canals; i the canalis major; k the canalis minor; l its communication with the major; m the canalis minimus; n the hole which corresponds to the foramen ovale. Fig. 12. is the cartilaginous body removed from the ossicus tube; a the superior cylinder; b the inferior; c their junction where they commence; c the cavity at the apex of the cylinders, laid open; G the nerve of the cochlea; f fits expansion in the cavity of the apex of the cartilaginous body.

Organ of Sight.

The peculiarities in the structure of the eyes of birds are chiefly intended to facilitate the perception of objects through a rare medium, and accommodate vision to different distances.

The form of the eye is admirably adapted in most species to promote both these effects. The anterior circle of the globe of the eye always projects more than in other animals; and in many species it is prolonged in a tubular form, and in those cases the cornea also is remarkably globous. The eyel furnishes the most striking example of the disproportion between the anterior and posterior spheres of the eye. The
axis of the anterior portion being twice as great as that of the other. The obvious consequence of this figure of the globe of the eye is to allow room for a greater proportion of the aqueous fluid, and for the removal of the crystalline lens from the field of the sensation, and thus produce a greater convergence of the rays of light, by which the animal is enabled to discern the objects placed near it, and to see with a weaker light; and hence owls, which require this fort of vision so much, possess the structure fitted to effect it in so remarkable a degree.

The felcotic coat of the eye in birds is thin and flexible on the posterior part, but anteriorly its form is maintained by the interposition of a number of bony plates between its layers. These vary from thirteen to twenty, and are arranged in a circle immediately behind the cornea, with their edges overlapping each other. They are commonly flat thin scales, and nearly of a square figure, but become elongated from before backwards in proportion as the bird possesses the power of changing the convexity of the cornea. In the owls the scales compose not only the projection of the eye (the cornea excepted), but contribute to form the posterior sphere. The scales are capable of a degree of motion upon each other, which is, however, restrained within certain limits by the attachments of their anterior and posterior edges to the felcotic coat; and by their being bound together with a tough ligamentous subfacie, which seems to be the continuation of the felcotic between the edges that overlap each other.

The cornea possesses the same structure as in mammalia, but differs with respect to form. When the posterior part of the eye is compressed by the muscles, the humours are urged forwards and distend the cornea; which, at that time becomes much more prominent in molt birds than it is ever observed in mammalia; and under such circumstances, the eye is in a state for perceiving near objects. When the muscles are quite relaxed, the contents of the eye-ball retire to the posterior part, and the cornea becomes flat, or even depressed; this is the condition in which we always find the eye of a dead bird, but we can have no opportunity of perceiving it during life. It is only practiced for the purpose of rendering objects visible that are placed at an extreme distance. From the well known effects of form upon refracting media, it must be presumed, that the cornea possesses very little, if any, convexity, when a bird, which is soaring in the higher regions of the air, and invisible to us, discerns its prey upon the earth, and descends with unerring flight to the spot, as is customary with many of the rapacious tribe.

There are other circumstances in the anatomy of the eye of birds, which have been supposed to concur with the extraordinary variation in the figure of the cornea, in producing its capacity for the perception of remote objects: these will be mentioned in their proper place.

The choroid coat differs in no material point from that of the human subject. The ciliary processes of the choroidies are very small and short; being merely irritated iris. There appears to be no tapetum.

The iris is sometimes of brilliant colours, which are employed by naturalists as distinguishing specific characters of birds. Parrots have the power of voluntarily producing a great degree of motion in the iris. It does not appear, however, that other birds are capable of commanding the motions of this part.

The pecten, or plicated membrane, is the most singular part of the structure of the eye of birds. It appears to grow from the choroidies where the optic nerve penetrates that coat; but on closer inspection it is found to have no intimate connexion with it. In structure, however, it is perfectly similar to the choroidies. The form of this part varies in different species; in general, it consists of a membrane folded backwards and forwards on itself, like the pleats of a garment, and presenting, when viewed on the side, something of the appearance of the teeth of a comb; on which account the name of pecten has been applied to it. In the fruticose birds, the folds of the pecten are larger, and collected towards the point, giving it a resemblance to a purse. The Parifian academicians therefore, in taking their description of this part from the offric, called it the marjus fund, by which name it is still very commonly known.

The plicated membrane proceeds into the substance of the vitreous humour, and usually becomes attached to the posterior part of the capsul of the crystalline lens a little to one side. In some instances it does not come into immediate contact with the capsule of the lens, but ends a very short way behind it amongst the cells of the vitreous humour: such is the case in the turkey, jayhawk, and several other birds. The number of the folds of the pecten vary. There are sixteen in the flork, fifteen in the offric, and seven in the great boned owl.

The functions of the plicated membrane have been often ascribed, but still remain involved in some degree of doubt. Hailer, and others, consider it as the medium through which the vessels are conducted to the crystalline lens; but there appears no reason for such a provision to exist in birds. Pettit was of opinion that it absorbed the lateral rays of light, in order that objects placed immediately before the eye might be more distinctly seen; which is highly improbable, as the scope of vision is full as extensive in birds as in other animals. The belief supported by this subject is Mr. Home's. The plicated membrane, according to his experiments, possesses a contractile power, and affords the means of withdrawing the lens from the anterior part of the eye, when the organ is adapted to the perception of remote objects; thus acting in concert with the change of figure in the cornea. Experiments, however, upon the operations of the eye are so delicate in their nature, that they are seldom to be relied upon, and accordingly in different hands they have afforded very different results; but the doctrine of the muscularity of the plicated membrane is almost proved by its seeming necessity for the explanation of the powers of adaptation of the eyes to different distances, which birds possess in a degree far superior to all other animals; and it seems fair to infer that if the accommodation of vision depends upon the motion of the cornea, and the recession of the lens in those animals which are so eminently endowed with it, similar means are employed for the same purpose in the other classes which possesses the faculty in a less degree. For the more ample diffusion of this subject, see Mr. Home's lectures on muscular motion, published in the Philosophical Transactions for the years 1794, 1795, and 1796; Dr. Olbers' "De oculi mutationibus internis," Gotting. 1780; "The Essays of Petit, Mem. de l'Acad." 1735; p. 163. 1736, p. 166; "Observations on the Eyes of Birds," by Mr. Pierce Smith, Phil. Transf. for 1795; and "Dr. Young's Lecture on the Mechanism of the Eye," Phil. Transf. 1801.

The optic nerve passes through an oblique sheath in the back of the felcotic coat, during which it changes from a round to a flattened shape, and as such, enters the eye, presenting on the inside an elongated white line, instead of a round disk, from which the retina is produced. The origin of the plicated membrane covers the entrance of the optic nerve.

The humours as well as the shape of the eye and the structure.
time of its coats, indicate the peculiar vision of birds and the kind of medium they inhabit. The aqueous humour, as already observed, is extremely abundant. It possesses considerable refractive powers especially in the higher regions of the atmosphere. The crystalline is remarkably flat and soft, as its offices can be so well supplied by the aqueous fluid in a rare medium. Both the form and the proportions of the humours in the eyes of all birds derive great illustration from being compared with those of fishes, which, in conformance of their continual residence in so dense a medium as water, have these parts formed upon a plan the very reverse.—Their eye is flat anteriorly; the aqueous fluid small in quantity, and of considerable consistence; and the lens spherical and hard, more especially in the centre. The cornean has the crystalline more spherical than other birds, from being obliged to seek its food under the water.

The musculi for the motion of the eye-ball are six in birds, as in the human subject; the four straight and two oblique. The tendons of the recti cannot be traced farther than the circle of imbricated bones. The operation of the straight muscles, when acting together upon the figure of the eye (which, as already observed, is so striking in birds), depends upon the bony scales of the anterior part of the sclerotic, and the thinness and pliability of that tunic posteriorly. The superior-oblique muscle does not pass through a pulley.

The external eye-lids are chiefly closed in birds by the elevation of the lower one, although there is an orbicular muscle which surrounds both. The inferior eye-lid is larger and thicker than the other, and contains internally an oval cartilaginous plate, under which the fibres of the orbicularis palpebrarum pass. There is also a peculiar muscle, which comes from the floor of the orbit, and acts as a depressor of the inferior eye-lid.

The internal eye-lid, or membrana nictitans, is a thin semitransparent membrane, which lies close to the globe of the eye. It has a vertical position, and, when not employed, is folded back by virtue of its own elasticity, and remains concealed from view in the corner of the eye next the nose. It is, however, capable of being spread over the whole of the anterior part of the organ, by means of the combined action of two curiously contrived muscles. One of them is a square figure, and thence called quadratus; it arises from the upper and back part of the eye-ball, and approaching the optic nerve, terminates abruptly in a circular edge, which contains a pulley for the passage of the tendon of the pyramidalis. This muscle arises from the side of the sclerotic next the nose a little inferiorly, and produces a line tendon, which runs through the pulley formed in the free edge of the quadratus, and afterwards returns in a cellular sheath on the lower surface of the sclerotic, and becomes attached to the margin of the membrana nictitans, along which it is continued for some way, and gradually lost.

The lacrimal gland is small in all birds. The glandula harderi exists, and is larger than the lacrymal. Cuvier describes it as being generally situated between the adductor and levator muscles, and as having a single excretory duct, which perforates the membrana nictitans, and discharges upon its inner surface a yellow tenacious fluid. Many water-birds have a hard granular body placed at the superior part of the orbit, which seems to perform the office of a lacrymal gland; and although its excretory ducts have not been yet seen, it probably furnishes a fluid of a peculiar nature, for the defence of the eye against the effects of the water and other accidents to which aquatic birds are exposed.

The figures, which serve to explain the organization of the eye, are found in Plate XI. of the Anatomy of Birds. Fig. 1, shows the cornea and imbricated bony scales of the geese, as an example of the figure these parts commonly assume in birds. Fig. 2, represents the same parts in the horned owl, in which the cornea will be seen very prominent, and the scales greatly elongated, forming the fore part of the eye into a tube. Fig. 3, exhibits a lateral view of the crystalline lens and the plicated membrane in the goose's eye; a the pecten attached to the posterior part of the lens a little to one side; b the edge of the lens marked by the ciliary processes; c the anterior part, which is particularly flat in birds. Fig. 4, shows the pecten and the lens in the relative situation they hold in the eye of the turkey; a the plicated membrane; b the lens; e the outline of the eye; d the optic nerve. Fig. 5, is a section of the eye of the emu; a the cut edges of the sclerotic coat; b the edges of the choroides; c the retina; d the plicated membrane formed like a purse. Fig. 6, presents the anterior part of the eye of the cassowary, with the membrana nictitans partially drawn over it, which is so fine a film that the parts of the eye are seen through it. Fig. 7, is the posterior view of the cassowary's eye, all the muscles, &c. being removed, but those for moving the membrana nictitans; a the muscle quadratus; b the pyramidalis at its origin; c its tendon passing through the pulley in the edge of the quadratus; d the tendon proceeding on the sclerotic coat.

Organ of Voice.

Until within these late years this part of the anatomy of birds has been involved in obscurity. Although several of the older anatomists described the structure by which birds produce sound, they were ignorant of its uses, from being misled by analogy, and supposing that this organ occupied the same situation in all animals. Even some of the descriptions of the abode of the modern anatomists have been erroneous or imperfect. The subject has been most laboriously and ingeniously investigated by Cuvier. He dissected the organs of voice of more than one hundred and sixty species of birds, and published the result of his inquiries in two memoirs; the principal one will be found in the Magazin Encyclopédique, tom. 2, to which we would refer the reader for numerous and minute details, that would be burdensome to introduce into the present work.

The true seat of the organ of voice in birds is at the bifurcation of the trachea, and not, as general analogy would dictate, at the superior larynx, which is in birds little more than a simple ring, or slit, formed, however, with somewhat differently shaped cartilages than belong to the rest of the trachea, and furnished with muscles for opening and closing the aperture. The mechanism of the inferior larynx, which fits it for the production of sound, depends upon the figure of its cartilages, and the expansion of its membranous parts.

The two branches of the bronchi are composed of feinings of cartilage; the internal surfaces, or those opposed to each other, being membranous. The feinings next the trachea are often large, and always left curved than those near the lungs. The consequence of which is, that the membranous part of the bronchus becomes expanded in proportion to its distance from the lungs, and towards the bifurcation usually assumes an oval figure, to which Cuvier has given the name of the tympaniform membrane.

Where the bronchus open into the trachea, there is the appearance internally of the reed of a musical instrument. This is produced by a thin and elastic fold of the inner membrane, which projects upwards from each side. The aperture is divided into two, sometimes by an ossicular bar extended across from before backwards, and sometimes merely by the angle produced by the union of the two bronchi.

When the air is expelled from the lungs and air-cells with force.
force through the bronchi, a lively vibration is excited in
the tympaniform membrane and the reed shaped aperture, or
glottis, upon which the production of the voice essentially
depends.

The magnitude, figure, and proportions of the inferior
larynx vary more or less in almost every species, which Cu-
vier has taken pains to point out.

The trachea is commonly enlarged, at its bifurcation, by
the expansion and union of its last cartilaginous rings, which
is designed to afford strength to the voice.

In the flute and the singing birds the last rings of the tra-
chea are united into a single piece, of which the base is wide,
and furnished with two points that are joined by a tran-
verse oblong bar in such a way, that the trachea commu-
nicates by two openings with each of the bronchi.

In the parrot, the last rings of the trachea are united, and
form a tube a little compressed on the sides. The very last
ring is almost square; it is also flattened before and behind,
and furnished posteriorly with two points. There is no par-
tition within. The sides of the bronchi, opposite to each
other, are membranous. The first semi-ring is large, flat,
and shaped like a crescent; the second, third, and fourth
semi-rings unite in one piece; and the fifth, sixth, and se-
venth are conflated into a similar plate. The edges of
both, however, present the marks of their original parts.

In the nocturnal birds of prey, the last ring of the trachea
is divided by a bone.

In the icellus rugicola, the four last cartilaginous rings
of the trachea are incomplete posteriorly, and the tympan-
iform membrane is continued up between them.

The male birds of the duck kind, and the genus mergans,
have the last rings of the trachea united, and forming a ca-
tilaginous or bony face, called by authors the ampulla, or
the larynx. This part, in the mallard, forms two dilata-
tions; the one on the right is small, and resembles a tunc-
cated cone, with a prominence from the base behind. The
left is a large vehicle irregularly rounded, and produces at
the lower part a pyramidal projection. Its right surface is
a little flattened below, and its inferior border is indented.
The cavity is interrupted by projections, or septa, in such a
manner, that the air cannot pass from the left bronchia into
the trachea, but through the capsule, although on the right
side it may. The entrance to the bronchia is provided with
a thick membrane, under which there are some glands re-
fembling the syneval, that secrete a mucous fluid.

The form and internal partitions of the ampullae of the
drakes of other species and the mergansers, are different in
every instance. Their deviations are described at length by
Cuvier. See Memoire fur le larynx inférieur des oiseaux,
Magazin Encyclopédique, tom. 2d.

Two species of cuculus (V. papa and V. aura) were ob-
served by Cuvier to be deprived of the organ of voice,
there being neither the tympaniform membrane, nor any
contraction, or projecting elastic parts at the entrance of
the bronchia into the trachea.

The voice of birds is modified, and the tones rendered
more acute or grave, by means of two deflections of mu-
cles. The first are common to all species, and have been
long known and described. They were called by Vic
d'Azir the inferior or external laryngeal. They are two flicky
cords, and arise from the triangular procieess of the sternum,
to which the inferior ribs are joined within the chest, and
proceed to the side of the trachea, above the bifurcation,
along which they ascend for its greatest length. Their ef-
ect is to depress the inferior larynx, and contract the bron-
chia, and thereby relax the tympaniform membrane, and
depress the tone of voice, and in some circumstances they
may also bring the trachea forwards. These were the only
muscles observed by Cuvier in the gallinacea, and most of the an-
terrors. It is probable, that no others are to be found also
in the rufubious birds.

The second kind of muscles are confined to the inferior
larynx; they are short, and situated upon each side of the
bifurcation of the trachea; and, except in the parrot tribe,
are all contractors, or intended to render the tympaniform
membrane tense, and thus exalt the tones of voice.

In most birds, which do not sing, there is but a single pair
of contractors, one on each side, which arises from some of
the last rings of the trachea, and is inserted into some of the
first semi-rings of the bronchia. These muscles are longest
in the nocturnal birds of prey, extending from the base of
the trachea to the seventh semi-ring. The contractors are attached
at the fifth semi-ring in the cuckoo, the heron, and bittern.
The latter birds owe their strength of voice to the elasticity
of the semi-rings, and the extent of the tympaniform mem-
brane. The goat-fuckers, kingfisher, and pelican, have the
contractor muscle affixed to the second semi-ring of the
bronchia; and the woodcocks, phalarope, celery, and the plow,
and recurvirostra, and probably all the weak billed grallae,
have it inserted into the fifth semi-ring.

The larynx of singing birds, and some others, is pro-
vided with five contractors on each side, which Cuvier
has named, according to their situation and direction.

1. The anterior longitudinal contractor.
2. The posterior longitudinal contractor.
3. The small longitudinal contractor.
4. The oblique contractor.
5. The transverse contractor.

These almost surround the bifurcation of the trachea, to
which they have all the same attachments, as near as may
be. The two first are inserted into the third semi-ring; the
two next into the second semi-ring; and the last is affixed to
the fifth semi-ring, and particularly to a little cartilage that
is joined to it.

Cuvier has observed the five pair of contractors in all the
singing birds, in the flute, in all the passeres, except the fal-
low and goat-fucker, and in the crow, raven, joy and many of
the pie kind.

The most complicated instrument of voice amongst
birds, is that of the parrot tribe. It posses five three pair of
muscles; but one pair is intended to relax the opening of
the gullet.

The principal contractor arises from the last ring but one
of the trachea, descends almost perpendicularly upon the lax-
atore, and then goes on to be inserted into the union of the
fifth, sixth, and seventh semi-rings of the bronchia. Its at-
tachment being joined to the femicircular plate, it urges the
upper part of the plate inwards, and thus contracts the
gullet.

The auxiliary contractor, occupies, for a certain distance, the
anterior part of the trachea, and sends off a tendon, which
is lost in the preceding muscle; its operation therefore, is
exactly the same.

The laxator is placed under the two other muscles; it
arises along the side of the trachea, and expands upon the
inferior concave edge of the last ring; in drawing which
outwards, the muscle enlarges the gullet.

See Plate XI. in the Anatomy of Birds. Fig. 8. shews
the external appearance of the inferior larynx in the cow; a
the lower part of the trachea; b the two bronchiae; c the
external laryngeal muscles, which are common to all birds;
d the contractors. Fig. 9. of the same plate exhibits the
organ of voice in the turabi; a the anterior longitudinal
contractor; b the transverse contractor partially exposed
under
under it: c the posterior longitudinal conductor, detached at one extremity, and curved outward; and Fig. 12. affords another view of the same subject: the posterior longitudinal conductor is turned down to expose f the face that he behind it: a the little longitudinal conductor; b the oblique conductor. Fig. 11 of Plate X. represents the anterior part of the organ of voice in the pigeon: a the principal conductor; b the auxiliary one; c the isxator; and Fig. 12 gives a lateral view of the same organ, which are indicated by corresponding letters.

The trachea, in several birds, is found to assume singular forms, and to suffer enlargements at particular places. There have long attracted the attention of naturalists. Some of the best observations on the subject have been made by Dr. Bloch of Berlin, and by Pallas, Silberfchlag, Beckmann, and Otto, who have each published in the Berlin Transactions, Feiftich. des B.-r. Nat. F. i. ii. iii. & iv. But by far the most copious account of the peculiarities of the trachea of birds, has been given by Dr. Latham in the Linnaean Transactions, vol. iv. p. 50.

The deviations from the common structure of the trachea, have been divided by Dr. Latham into two kinds. In one the wind-pipe does not alter its capacity, but possesses an uneven length, which is disposed of either in convolutions on the outer part of the body underneath the integuments, or in a cavity formed within the sternum for the purpose. The other kind of deviation consists in dilatations occurring either at the bifurcation of the trachea, or both there and in the middle of the tube.

The trachea of the wood pheasant, when arrived at the crop, takes a bend upwards for a little way, and again turns down, and pursues its course to the lungs. There has been no peculiarity observed in the other birds of this genus which visit this kingdom.

The turkey (penelope marcella.) the trachea makes a round turn on the outside of the top of the sternum, and then enters the chest.

In the male parrakeet, the wind-pipe descends under the skin more than half the length of the body, before it returns to enter the thorax.

The guan (penelope criftata) has the trachea still longer than the preceding. It passes to the very bottom of the belly, and then turns up again, before it makes the double. See Plate XI. in the Anatomy of Birds, fig. 13.

The Indian cock was observed by the academicians to have a degree of convolution in the trachea, which varies somewhat in different individuals.

The ouisoue curfus has the most remarkable convolutions of the trachea. It first descends upon the right pectoral muscle to the end of the sternum, where it makes a convolution to the left, something in the shape of a ring, after which it returns to the right pectoral muscle, and goes over the clavicle into the thorax.

The semi-palmated goose of New Holland has an extensive convolution of the trachea under the skin. Its note is said to be very musical.

The arfida wren, the wild or whistling wren, and the crane, have the winding of the trachea accommodated in the keel of the sternum. It is singular that this structure does not exist in the tame fowl, which in other respects so much resembles the wild bird. See Plate XI. in the Anatomy of Birds, fig. 14. This shows the trachea in the wild fowl, and the sternum cut open to expose the cavity which lodges the trachea. bbb the trachea; c c the fork; d d the clavicles. The above structure belongs to both sexes.

The dilatations of the trachea are confined to two genera, Vol. IV.

The bony enlargements at the bifurcation into the bronchi, which are called ampulse, or labyrinths, exist in every species of duck and merganzer. They consist of two cells, one in general much larger than the other. In some cases the partitions of the cells are in a great measure formed by a membrane spread across it, like the head of a drum. There is also a bony arch turned across to give it strength. This is the case in the duck, the pochard, tufted duck, the gnuze, &c. See Plate XI. Fig. 15, is the end of the wind-pipe of the pochard (fama formis).

The trachea of the golden eye duck is very curious. The labyrinth is more complicated than usual; and there is a singular enlargement in the middle, which is formed by cartilaginous joints, or plates, placed obliquely, and folding over each other, so that the part admits of being contracted and lengthened, as the motions of the neck may require.

The velvet duck is distinguished by two very remarkable offshoots enlargements, one is situated immediately below the superior larynx, and another in the middle of the wind-pipe. The lower part does not form the usual ampulla, but the bronchius become for a little way bony canals. See Plate XI. in the Anatomy of Birds. Fig. 16. represents the trachea of the velvet duck, a the superior, or laryngeal offshoot cell; b the bony cavity of the middle; c c the offscott parts of the bronchus.

The red-breasted merganzer has the middle of the trachea formed like that of the golden eye duck, only the plates are made of bone, and curiously sawn; indeed all the trachea of the merganzers, as Dr. Latham observes, consists little else than bone.

A very little comparison of the mechanism of wind musical instruments with the organs of voice in birds, will shew how nearly they are allied to each other; and it may be observed, that the sound produced by some of the larger birds is exactly similar to the notes that proceed from a clarion, act or harpby in the hands of an untutored musician. The inferior glottis exactly corresponds to the reed, and produces the tone or simple sound. The superior larynx gives it utterance as the holes of the instrument; but the strength and body of the note depend upon the extent and capacity of the trachue, and the hardness and delicacy of its parts. The convolution and bony cells of the wind-pipe, therefore, may be compared with the turns of a French horn, and the divisions of a bajoon; and they produce the proper effects of these parts in the voices of those birds in which they are found.

Birds, in Ancient Auditory. Prefecture, or knowledge of futurity, was supposed, among the ancients, a natural faculty of birds, owing, perhaps, to their nearer intercourse with heaven, or their breathing a purer and more celestial air than other animals. Hence it was, that divination by birds obtained among the ancient Greeks and Romans, being performed by observing, and interpreting the flight, chirping and feeding of divers birds. (See Auditory.) Birds, with regard to augury and divination, were of divers kinds, viz. Aves suspicas, or Aves, those which naturally portended good, such were the dove, fawn, &c. Aves inspctae, dire, ensima, those that boded some evil or mischief; such were the kite, raven, crow, and owl, every where, except at Athens, Admirens, that which excites and encourages the confidier to execute what he has in view. Ariona or arca, that which forbad a thing to be done; otherwise called

Dr. Bloch, who has been the subject of several odes, has given a most curious account of the bony enlargements of the trachea, and their analogies in the human organ of voice.
called clivia, clamatoria, and prohibitoria, inebra, and inhiba. Incendiaris, that which gave omen of a fire, or other calamity; or which is seen carrying a firebrand from the funeral pile to a house. Remora, that which slays or delays an action. Sinistra, that on the left hand, denoted a happy or prosperous omen; and was also called secunda, prospera. Atter, those which gave omens by their wings and flight. Offines, those by their flinging or chirping. Pulli, by their pecking. Pregestes, those by their flight, or perching, gave happy omens. Insebra, or inebra, those which in like manner gave ill omens.

Bird, William, in Musical Biography. This worthy and admirable scholar of the profound Talus, is supposed to have been the son of Thomas Bird, one of the gentlemen of Edward the sixteenth's chapel, in which he was himself a singing-boy. By the great number of his ecclesiastical compositions to Latin words, and the several portions of the Roman ritual which he so frequently set to music, and published late in life, he seems to have been long a zealous adherent to that religion. He must, however, have conformed to the church establishments of queen Elizabeth's reign; for, in 1563, he was chosen organist of Lincoln cathedral, where he continued till 1569, when, upon the accidental death of Robert Parsons, who was drowned at Newark-upon-Trent, he was appointed gentleman of the chapel royal. Notwithstanding which office, he seems to have composed the chief part of his Choral Music to Latin words, and to have published it in that language, as late as the middle of the reign of king James I.

In 1575, it appears by the title-page of the "Cantiones Sacrae," and the patent annexed to that work, that he and Talus were not only gentlemen of the royal chapel, but organists to her majesty queen Elizabeth. Indeed both must have been great performers on the organ, to have been able to give full of their pieces for that instrument as are still preferred; in which the passages, though awkward to performers who are only accustomed to modern music, must have been figured by persons that were habituated to the complicated, and now, almost, insuperable difficulties of the sixteenth century. And though the compositions for keyed-instruments by these great masters of harmony, are totally unmusical, and without grace, it is impossible not to regard their ingenuity and contrivance in the texture of the parts, with respect and wonder.

If we consider the elaborate style of composition which prevailed, particularly in the church, during the time of Bird, and that he, like his master Talus, was not only ambitious of vanquishing its usual difficulties in the construction of fugues and canons, but invented new complications, perplexities, and involutions in the motion and arrangement of the parts, the following list of his works will not only manifest diligence, but fecundity.

Beneath the great share he had in the "Cantiones Sacrae," published in conjunction with his master Talus, in 1575, when his name first appears as an author; and without enumerating many admirable compositions for the church and chamber, still subsisting, but which were never printed, or, at least, not till after his decease, he published "Psalms, Sonnets, and Songs of Sadness and Pity," of five parts, 1585; "Liber primus facrarnum Cantionum, quinque voce," 1589; "Sono, of teudiee Natures, see of Graffite, and others of Myth, fit for all Companes and Voyces," 1589; "Cantua a Canti sacrae, Lb. primus et secundus," 1607 and 1610. The last work published by himself, was entitled, "Psalms, Songs, and Sonnets: Some solennem, others joyful, framed to the Life of the Words, fit for Voyces or Viol, of three, four, five, and six partes,"

1611. Dr. Tudway's collection, in the British Museum, contains a whole service in D minor, by Bird, with responses, and the anthems, "Sing joyful unto God,"—"O Lord, turn thy Wrath,"—(all published in the second and third volumes of Dr. Boys's Cathedral Music)—"O Lord, make thy Servant,"—"Save me, O God,"—"Prevent us, O Lord,"—" Civitas sancti tuus," one of hisSacramuntum, or Sacred Songs, published 1589, has been long sung in our cathedrals to the English words, "Bow thine ear, O Lord," and is one of the admirable pieces of harmony in the second volume of Boys's printed collection.

Dr. Aldrich, who was a great admirer and collector of the works of Bird, and who adapted English words to most of his compositions which have been used in our cathedrals, and that were originally set to parts of the Romish service, in Latin, has bequeathed to Chrift Church, Oxon, beautiful and correct copies of most of his productions, in a set of books, small 4to. In this library near forty of his compositions are preserved; and in another set, many more, with those of Talus, Taverner, Tye, White, Redford, both the Mandys, Shepherd, Bull, and other contemporary English masters.

Bird's pieces for the organ and virginals are almost innumerable. In a magnificent folio manuscript, curiously bound in red morocco, formerly in Dr. Pepeliah's collection, which is generally known by the name of "The Queen Elizabeth's Virginal Book," there are near 70 of his compositions.

The first piece by Bird, in this book, and the eighth in the collection, is a Fantasia, which generally implies a Fugue, in which the subject is as frequently changed as in ancient Choral Music, where new words require new accents and intervals; for as yet, it was not the custom in composing fugues to confine a whole movement to one theme; and here Bird introduces five or six, wholly different and unconnected with each other.

The subject of the second composition, by Bird, in the Royal Virginal Book, is the tune of an old ballad, "John come kis me now," of which, with great labour and ingenuity, he has varied the accompaniments sixteen different ways; for while the treble, bass, or some inward part, is always playing the original air, three other parts are moving in fugue, or running rapid and difficult divisions. No. 53, is another Fantasia; and 56, a Pavan, by Bird; which implied a grave majestic dance, in common time, similar to the movement of the peacock. This strain was usually followed by the Galliard; which, on the contrary, was gay and lively dance, in triple time, but on the same foundation as the preceding Pavan. No. 58, is entitled, "The man's Whistle." From No. 58 to 69, the compositions are all by Bird; confiding chiefly of old tunes, with variations; among which is "Fortune," a plaintive and expressive melody, to which the ballad, called "Titus Andronicus's Complaint," is adapted in Reliques of Ancient English Poetry, vol. i. p. 204, was originally written. It has been imagined that the rage for variations, that is, multiplying notes, and diguising the melody of an air, and, generally, well-known air, by every means that a grace note, or note slitter, fits possi, was the contagion of the last century; but it appears from the Virginal Book, that this species of influenza, or corruption of air, was more excessive in the sixteenth century, than at any other period of musical history.

Crowded and elaborate as it is the harmony, and uncouth and antiquated the melody, of all the pieces in this collection by various composers, there is a manifest superiority in those of Bird over all the rest, both in texture and design. In a later age his genius would have expanded in works of invention, talent, and elegance; but, at the period in which he
he flourished, nothing seems to have been thought necessary for keyed-instruments, except variations to old tunes, in which all the harmony was crowded, which the fingers could grasp, and all the rapid division of the times, which they could execute. Even nominal fances were without fancy, and confined to the repetition of a few dry and unmeaning notes in fugue, or imitation. Invention was so young and feeble, as to be unable to go alone; and old chants of the church, or tunes of the street, were its leading-strings and guides.

Though the reformation had banished superfluous from the land, fragments of *canto fermo*, like rags of paper, still remained in our old secular tunes, and continued to have admission in the new. Indeed the melodies of all the rest of Europe had no other model than the chants of the church, till the cultivation of the musical drama; whence all the rhythm, accent, and grace of modern music, have manifestly been derived.

Besides the great number of Bird's compositions for keyed-instruments, which are preserved in the Virginal Book of queen Elizabeth, another manuscript collection of his pieces still subsists, under the title of "Lady Nevil's Music Book." It is a thick quarto, very splendidly bound and gilt, with the family arms beautifully embellished and illuminated on the first page, and the initials H N at the lowest left hand corner. The music is all written in large, bold characters, with great neatness, on four flaved paper, of six lines, by Jo. Balewine, a singing-man at Windsor, and a celebrated copyist of queen Elizabeth's time. The pieces contained in this collection, sixteen of which are entered in that queen's virginal book, amount to forty-two, with variations to many of them, of the most laboured and difficult kind. The notes, both white and black, are of the lozenge form, like those of the printed music of the same period.

BIRD.

Lady Nevil seems to have been the scholar of Bird, who professedly composed several of the pieces for her ladyship's life.

None of Bird's pieces for keyed-instruments seem to have been printed, except eight movements in a thin folio book of lessons that was engraved on copper, and published in the reign of king James I. under the following title: "Parthenia, or the Maidenhead of the Muficke that ever was printed for the Virginals. Compos'd by three famous masters: William Bird, Dr. John Bull, and Orlando Gibbons, gentlemen of his majesty's most illustrious chapel." Thse lessons, though not equally difficult with some of those in the Virginal Books of queen Elizabeth and lady Nevil, are rather more dry and ungraceful.

The canon, *Non nobis Domine*, appears in none of his works published by himself, or collected by others, before the year 1652; when Hilton inferred, and prefixed the name of Bird to it, in a collection of catches, rounds, and canons. But as no claim was laid to it by, or in favour of, any other composer, before or since that time, till about the middle of the left century, when it was given to Palefliina by Carlo Ricciotti, who published, in Holland, among his concertos, a fugue in eight parts, on the same subject, there seems to doubt remaining of our countryman Bird having been the author of that pleasing and popular composition.

Bird died in 1623, surviving his master Tallis thirty-eight years; and if we suppose him to have been twenty in the year 1575, when he was chozen organist of Lincoln, he must have been eighty at his decease. Peacham, in his Complete Gentleman, speaks of him with great reverence; "For

Motets and Musick of piety and devotion, as well for the honour of our nation, as the merit of the man; I interfere above all others our Phoenix, Master William Byrd, whom in that kind I know not whether any may equal. I am sure none excelled, even by the judgment of France and Italy, who are very sparing in their commendation of strangers, in regard to that concept they hold of themselves. His Cantiones Sacrae, as also his Gradualia, are most angelical and divine; and being of himselfe naturally disposed to gravity and piety, yet his Virginalia, and some others in his E R fett, cannot be mended by the best Italian of them all." Second Improvisation, p. 100. His pupil, Morley, in his Introduction, every professor and musical writer of his own and later times, never mention him but with the highest respect. At this remote period but little, however, can be known of his private life, which was too illustrous and sedentary to have furnished history, at any time, with events of general interest. With respect to what Ant. Wood afferts in his Fafi, that "Bird was excellent in mathematics," it is, in his usual way, supported by no proofs: and indeed mathematics have to little to do with practical music, either in composition or performance, that those musicians, who are most ignorant of the ratio or philosophy of sounds, seem constantly to have arrived at the highest degree of excellence in the seelction, combination, and refinement of them in practice, by the mere sufficiency of experience, and the gift of good ears and powerful voices. That he was a diligent cultivator of his art appears from his numerous works, which are more the productions of meditation and study than of haste and enthusiasm. That he was a pious, the words he selected, and the solemnity and gravity of style with which he set them, sufficiently evince. Of his moral character, and natural disposition, there can, perhaps, be no testimonies more favourable, or less liable to suspicion, than those of rivals professors, with whom he appears to have lived during a long life with cordiality and friendship. And, of the goodness of his heart, it is, to us, no trivial proof, that he loved, and was beloved, by his master, Tallis, and scholar, Morley; who, from their intimate connexion with him, must have seen him en rebe de chamber, and been spectacles of all the operations of temper, in the opposite situations of subjection and dominion.

Indeed, the best memorials of a professional man's existence are his surviving works; which, from their having been thought worthy of preservation by posterity, entitle him to a niche in the Temple of Fame, among the benefactors of mankind. The physician who heals the diseaese, and animates the soul of the body, certainly merits a more conspicuous and honourable place there; but the musician, who eminently foother our forefathers, and innocently diverts the mind from its cares during health, verifies his memory dear to the grateful and refined part of mankind, in every civilised nation.

Bird cherry, in Botany. See Prunus Padus.

Bird's eye. See Adonis.

Bird's foot. See Ornithopus.

Bird's foot trefoil. See Lotus.

Bird's nigl, a name used by some for the daucus, or carrot; and by others for orbs.

Bird's nigl purple. See Ochrys.

Bird's pepper. See Capsicum.

Bird's tongue. See Scenecio.

Birds. See Canary birds.

Bird of the wise, among Adonis, is the philosophical mercury; and, in general, symbolizes or signifies pure, refined by the separation of their terrestrial part.

Bird, golden, the hermetic matter partly matured.
Bird. green, the philosopher's fume, at the time when its green colour appears.

Birds, Cyprian, aves Cypris, or arvicula Cypris, is a denomination given to a kind of odoriferous candles, made of the matter of troches, and burnt for the sake of their fumes, called also, from their figure, baculi, or sticks.

Bird of Hermes, aotis, or arvicula Hermitica. Alchemists speak much of that which flies in the night without wings. Some will have the arvicula hermitica to be an universal falt prepared from dew.—It also denotes red-head.

Birds, decoy, are those which are trained up to call and allure others into the fowler's net, snares, line-twiigs, or the like. See Decoy.

Birds, Humming. See Humming-bird.

Birds, in Domestic Economy, and in reference to their use as aliments. See Fowl.

Bird, in Falconry, denotes a hawk, or falcon. See Falconry.

Nides birds, aves nidulabae, denote those taken while in the nest. Routage birds, arboruæ aves, are those only arrived at strength sufficient to fly from branch to branch. Hazard bird, is that which has lived at liberty, and is thence more wild and untractable. Bird of the fijf, is that which having been reclaimed, returns to, and perches on, the hand, without the help of a lure. Bird of lure, signifies that which comes to the lure, and by that means to the hand. Befart bird, a hawk, for instance, bred of a hawk and a lanner; or a faker, bird of a faker and a lanner. Coward birds, those which only pursue their game for their own belly, and which are not to be reduced to juff sport; as ravens, kites, &c.

Bird, in Geography, the name of a small island in Durnaus, in the county of Cork, Ireland.—Also, another small island in Strangford lough, and county of Down.

—Alfo, one of the Bermudas, islands.—Alfo, a small island in the gulf of St. Lawrence, 21 leagues W. of Cape Annequa on the island of Newfoundland. N. lat. 47° 35'. W. long. 66° 45'.—Alfo, an island in the southern Pacific Ocean, discovered by capt. Cook, in 1768, in his voyage from Cape Horn to Ophir, covered with verdure, and inhabited. S. lat. 17° 48'. E. long. 216° 24'.—Alfo, an island in the southern Pacific Ocean, near the north-west coast of the island of New Georgia, discovered by capt. Cook in 1775. S. lat. 54'. W. long. 38° 24'.—Alfo, an island of the same name, discovered, in 1788, by the commander of the Prince of Wales, and so called from its being the resort of many birds. This solitary island, or rather single rock, rising out of the immense ocean, was particularly examined by Vancouver in 1794. Its greatest extent, in a direction S. 74° W. and N. 74° E. did not exceed one mile; and its northern, eastern, and western extremities, against which the sea broke with great violence, presented a very awful appearance, rising perpendicularly from the ocean in lofty rugged cliffs, inaccessible except to its winged inhabitants; on its southern side the ascent is not so steep and abrupt; and near its western extremity is a small sandy beach, where, in fine weather, and with a smooth sea, a landing might probably be effected. At this place was the appearance of a little verdure, though it was delitute of tree or shrub; every other part was apparently without soil, and confined only of the naked rock. The whole circumference does not exceed a league, and it is situated in N. lat. 24° 6'. E. long. 158° 8'. It lies from Onehow, one of the Sandwich islands, N. 51° W. at the distance of 339 leagues; it is recognized by the natives of those islands under the appellation of "Moono Mannoo," that is, bird island; and from its great distance from all other islands, and its proximity to their islands, it seems to claim some pretensions to be ranked in the group of the Sandwich islands; which see.—Also, a small island near the north-east coast of New Holland, lying low and almost covered with birds; 4 leagues N. W. from cape Grenville. For other islands under this denomination; see Aves.

Bird fort, an American fort on Manongahela river; 40 miles south of Fort Pitt.

Birds-Key, or Round island, a small island, or rock, among the Virgin islands; in the West Indies; 2 leagues S. of St. John's island; and 3 N. E. from St. Croix, or Santa Cruz. N. lat. 17° 55'. W. long. 64° 36'.

Birds. Maffe, aves internicenes, denote those that are employed to convey letters or other dispatches, either for the sake of expedition or safety. See Carrier pigeon and Allepo.

Bird, mocking, the turdus polyglottus; which see. See also Mock bird.

Bird bolt, in Heraldry, is a small arrow with a blunt head, and often represented in armor, with two and sometimes three heads rounded, but in that case the number of heads must be noticed.

Bird call, a small fick eft at one end, in which is put a leaf of some plant, that serves to counterfiet the call of several birds, and to bring them to the net, snare, &c. by which they are taken. A leaflet fitched on the bird-call counterfets the voice of landings. A leak that of the nightingale, &c. See Call and Bird-catchling.

Bird Catching, in its most comprehensive sense, denotes the art of taking birds or wild-fowl, either for food, or for enjoying the pleasure of their song in cages, or for preventing the destruction which some species of them occasion to the husbandman. Some recur to it as an amusing pastime, and others practice it as a profitable employment; and with a view to one or other of these objects, various modes of taking birds have been adopted, and the practice is in some places reduced to a kind of system. One of these methods is denominated Bat-Fowling, or, as some term it, Bat-folding. For this purpose, five or fix persons commonly provide themselves with a large net, expanding, when open, to the extent of a man's arms, and about three yards high, and formed of meshes so small as not to allow the escape of the smallest bird. The extremities of the net are attached to two poles, held one in each hand of the person who has the management of it. With this, and a large lanthorn affixed to a pole, the party proceeds to corn-fields, out-houses, yew-hedges, thatched buildings, &c. The cords of the net being separated to their utmost extent, it is placed before any spot where birds are supposed to roost, and the light being held before the centre of the net, the affidants in this operation beat the hedges, ricks, caves, &c. with poles; and the birds, thus alarmed, fly towards the light, upon which the person who holds the net claps its poles together, and encloses the birds. From the latter circumstance, the net is called a clap net. Sparrows, larks, thrushes, and the other small birds, are thus caught in great numbers in dark nights. Another method of bat-fowling, is performed by means of a long net drawn over the ground, followed by a person bearing a light; and this net, in its passage, ensnare and confines any birds that happen to be under it. But one of the most ingenious and systematic methods of bird-catchling, is practiced principally in the vicinity of London, by persons who find a ready market for birds used as food, or who deal in fong-birds, which, at certain feasons of the year, change their situation, and are hence denominated birds of flight, in the language of this art. The birds usually taken on fuch occahions, are wood-larks, titlarks, linnets, aberdaines, gold-fitches, and green-fiches. They are principally
pally taken during what is called their flight, or while they congregate for the purpose of propagating their species. The wild birds begin to fly in the month of October, and part of the preceding and following months; and the flight in March is much less considerable than that of Michaelmas. It is to be noted also, that the several species of birds of flight do not appear exactly at the same time, but follow one another in succession. The pippet, which is a small species of lark, inferior in its song to other birds of that genus, begins his flight, every year, about Michaelmas; and then the wood-lark, linnet, gold-finch, chaffinch, green-finch, and other birds of flight succeed; all of which are not easily to be caught, or in any numbers, at any other time, particularly the pippet and the wood-lark. These birds, during the Michaelmas and March flights, are chiefly on the wing from day-break to noon, though there is afterwards a small flight from two till night; but this is so inconsiderable, that the bird-catchers always take up their nets at noon. Another circumstance worthy of notice is, that, during their flying, they always fly against the wind; hence the bird-catchers eagerly contend for that point; so that if it be westerly, the bird-catcher, who lays his nets most to the east, is sure almost of catching every thing, provided that his call-birds are good: a gentle wind to the south-west generally produces the best sport. The nets used by the bird-catchers are about 12 yards long, and 2¼ wide; which are known in most parts of England by the name of "day-nets," or "clap-nets," but the belt are those that are used in the neighbourhood of London. These nets are spread upon the ground parallel to one another, and at such a distance, that when turned over, they shall coincide. The remaining apparatus consists of lines so fastened to the nets that the bird-catcher is able, by a sudden pull, to draw the net over the birds that may have alighted in the space between their parallel sides. These birds are elicited to flight by others usually denominated "call-birds," of which there are generally five or six, linnets, two gold-finchs, two green-finchs, one woodlark, one red-poll, a yellow hammer, a titlark, and an aberdavine, and perhaps a bull-finch. These are placed at small distances from the nets in little cages. Besides these, the bird-catcher has others called "flur-birds," which are placed within the nets, raised upon the flour, and gently let down at the time the wild birds approach it. This "flur" is a movable piece to which the bird is tied, and which the bird-catcher can raise or depress at pleasure, by means of a long string fastened to it. These flur-birds generally consist of the linnet, the gold-finch, and the green-finch, which are attached to the flour by what is called a "brace," which secures the birds without injuring their plumage. This brace is a sort of bandage, formed of a flender fiken ftring, that is fastened round the body of the bird, and under the wings in such a manner as to prevent the bird’s being hurt, however it may flutter when it is raised. The call-birds are particularly trained for the service to which they are appropriated. Accordingly, the bird catchers contrive to improve the song of these birds, by causing them to mount before the usual time. For this purpose, they put them, in June and July, into a close box, under two or three folds of blankets, and leave their dung in the cage to incense their heat; and in this state they continue, being, perhaps, examined once a week to have fresh water. The air of the cage is so putrid, that they want little or no food, as they eat fearlessly any thing during the whole period of their confinement, which is about a month. The birds frequently die under this operation; and on this account the “tipped bird,” as it is called, is the more valuable. When the bird hath thus prematurely moulted, he is “in fong,” while the wild birds are “out of fong;” and his note is louder and more piercing than that of a wild once: and his plumage is by this process equally improved. The black and yellow in the wings of the gold-finch, for example, become deeper and of a more vivid color, and acquire a very beautiful gloss, which is not to be seen in the wild bird. The bill, which in the latter is likewise black at the end, becomes in the “tipped bird” white and more taper, as are also its legs; and, in short, there is as much difference between a wild and a tipped bird, as there is between a horse, which is kept in gaudy cloths, and one at grave. When the bird-catcher hath laid his nets, he departs for his "call-birds," at proper intervals; and Pennant observes, that a masculine joy appears in these call-birds, to bring the wild ones to the same flat of captivity; and this is also the case with regard to the decoy ducks. After they have seen or heard the approach of the wild birds, which they observe long before it is perceived by the bird-catchers, the intelligence is announced from cage to cage, with the utmost efficacy and joy. The note, by which they invite them down, is not a continued song, like what the bird utters in a chamber; but “short jerks,” as they are called by the bird-catchers, which are heard at a great distance. So powerful is the ascendancy of this call over the wild birds, that the moment they hear it, they alight on a spot, within twenty yards of three or four bird-catchers, which otherwise would never have attracted their notice. It also frequently happens, that if, by pulling the string, half a flock only should be caught, the others who have escaped, will immediately return to the nets, and share the fate of their companions; and if only one bird should escape, that bird will still venture into the scene of danger, till it be caught; such is the fascination power which the call-birds possess with regard to the others. A bird, acquainted with the nets, is by the bird-catchers termed a “sharper;” and this bird they endeavour to drive away, as they can have no sport, while it continues with them. These sportmen frequently levy considerable wagers, whose call-bird can “jerk” the longest, as this circumstance determines their superiority. With this view, they place them opposite to each other, near an inch of carded, and the bird that jerks the attendent, b for the cage it burnt out, wins the water. Me bird have given 170 Jerks in a quarter of an hour, and a lunet has been known, in such a trial, to perform six in its elevation, till it formed from the perch; thus, as Pinder (L. x. c. 29.) says of the nightingale, “vita morte finit foage vitam; spiritu prae-destinat quem curas.”

It is observable, that these bird catchers immediately kill the birds of every species of birds they take, as they are incapable of singing, and inferior in plumage. The pippets, like-wise, are indiscriminately dismissed, as the cock does not sing well. The dead birds are commonly sold for three pence or four pence a dozen. The flur of these is regarded as a delicate acquisition at the tables of the luxurious; and yet the table for small birds is far from being so prevalent in England as it is in Italy, where they are eaten under the name of “beccacino.” However, the luxury of the modern Italians will appear to be partaken, when compared with the extravagance of their predecessors the Romans. (See Gloina Anit.) The highest price given for singing birds in London, Mr. Pennant informs us, is about five guineas; this sum having been paid for a chaffinch, that had a particular and uncommon note, under which it was intended to train others, and five pounds ten shillings have been given for a call-bird linenet. Mr. Pennant informs us, that when the titlarks are caught in the beginning of the season, it frequently happens, that 40 are taken without one female; the cage is the same with the wheatear, and probably with respect to other birds; and this
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this circumstance confirms the observation of Linnaeus, that the male chaffinches fly by themselves, and the flight precedes the females; and the fact extends to other birds. Such birds as breed twice a year have generally in their first brood a majority of males, and in their second of females.

As the bull-finch, though it is not properly either a singing bird, or a bird of flight, its range being merely from hedge to hedge, fetches a good price on account of its learning to whistle tunes, and as it sometimes flies over the fields where the bird-catchers lay their nets, they have often a call-bird to enliven it, though most of them can imitate the call with their mouths. It is a peculiarity with regard to this bird, that the female answers the purpose of a call-bird, as well as the male, which is not to be experienced in any other bird taken by the London bird-catcher. The nightingale, though distinguished as a singing-bird, moves only from hedge to hedge, and does not take the periodical flights of other birds in October and March; and therefore it is not classified by the bird-catchers among the birds of flight. The persons who catch these birds make use of small trap-nets, without call-birds, and are considered inferior in dignity to other bird-catchers, who will not rank with them. The arrival of the nightingale is expected by the trappers in the neighbourhood of London the fist week in April; at first, none but cocks are taken, but in a few days the hens make their appearance, generally by themselves, though sometimes a few males come along with them. They are caught in a net-trap, the bottom of which is surrounded with an iron ring; and the net itself is somewhat larger than a cabbage-net. When the trappers hear or see them, they threw some fresh mould under the place, and bait the trap with a mealworm from the baker's shop. In this way ten or twelve nightingales have been caught in a day.Pennant's Zool. vol. ii. Append.

Birds are caught in traps of various kinds; and frequently by nooses of hairs. In this way, great numbers of wheat-ears are annually taken on the various downs of England. Small holes are dug by the shepherds in the ground, in each of which is placed a noose. Whenever a cloud obscures the sun, these timid birds seek for shelter under a stone, or creep into any holes that present themselves; and they are thus ensnared by the nooses which fasten around their necks. Woodcocks and snipes are taken likewise by nooses of horse-hair placed along their paths, in marshes and moor grounds. Wild ducks in all their varieties are taken in油画 numbers every winter on our coasts by means of decoys. (See Decoy.) Grouse and partridges are taken by means of nets, either at night when reeling on the ground, by observing where they slant, and when setted, drawing a net over that part of the field; or, in the day, a very steady dog is used to point at them. The attention of the birds being thus fixed, two persons, drawing the two extremities of a large net, pass it over them, and thus secure a whole pack of grouse, or a covert of partridges at once. Pheasants are sometimes taken by night, by holding flaming sulphur under the trees on which they are perched to perch, the suffocating effluvia of which make them fall fenoufels. More Pretty informs us that, during his travels in North America, he took great numbers of the passenger-pigeon in a similar manner. For various methods of taking land; see Alauda. For the use of bird-line among bird-catchers; see Bird-line.

In various parts of the world, peculiar modes are adopted for ensnaring and taking birds, some of which, whilst they are hazardous to those who practise them, excite no considerable degree of surprise, and even of anxiety, in the spectators. Thus, in the Orkney islands, where the birds that inhabit the rocks, and the eggs which they deposit among the cliffs, supply the principal food of many among the poorer inhabitants, the intrepid and adventurous fowlers climb rocky precipices more than fifty fathoms above the sea, and pass from one shelf or ledge to another, whole breadth is barely sufficient for resting places to the birds, which deposit their eggs among them. In this hazardon employment, the adventurers are commonly lowered from above by means of a rope, formed of brittle materials, and held by a single assistant. Tattered to this rope, the intrepid peafant defends, and searches all the cavities for eggs, springing from one projecting ledge to another, by the help of a pole, whilst the assistant, upon receiving the necessary signals, shifts the rope from one part of the rocky precipice to another. If the weight of the fowler and of his booty should, in these perilous circumstances, overpower his associate above, or the craggy rock cut the rope, inevitable destruction must await the adventurer; for he will either be dashed against the projecting rock, or drowned in the subjacent sea. But the most singular species of bird-catching is in the holm of Nofs, which is a huge rock fevered from the isle of Nofs by some unknown convulsion, and distant from it about 16 fathoms. The opposite cliffs are separated by the raging sea. The adventurer, having reached the rock in a boat, and ascended to the top of it, fastens several flakes in the shallow foil that is found on the surface of the rock; and similar flakes are also attached to the edge of the corresponding and opposite cliff. A rope is then fixed to the flakes on both sides, upon which a machine, called a cradle, is contrived to slide; and by the help of a small parallel cord fastened in like manner, the daring adventurer wafts himself over, and returns with his booty.

In the Feroe islands the method of bird-catching is more extraordinary and hazardous than any which has already been recited. The cliffs, to which the fowlers recur, are in many cases 200 fathoms high; and they are traversed both from above and below. In the first cafe, the fowlers provide themselves with a rope 80 or 100 fathoms long; and the adventurer fastens one end about his waist and between his legs, and having recommended himself to the protection of the Almighty, he is lowered down by fixed associates, who place a piece of wood in the margin of the rock, that the rope may be preferred from being fretted and broken by its sharp edge. To his body is fastened a small line, which scribes for enabling him to give the necessary signals, when he wishes to be raised or lowered, or shifted from one place to another. In changing his situation, he is exposed to the hazard of being raised falling flakes, which, falling on the head, must inevitably destroy him, if he were not in some degree protected by a strong thick cap. The fowlers, by their alloning dexterity, contrive to place their feet against the front of the precipice, and to dart themselves some fathoms from it, for the purpose of surveying the roofing places of the birds, and projecting themselves into the deep recesses, where they lodge. There the fowler alights; and disengaging himself from the rope, which he fixes to a stone, collects the booty at his leisure, attaches it to his girdle, and when this is done, resumes his full-shouldered cloak. He will infld when occasions require it, springing from the rock, and at this attitude, by means of a bowling net, fixed to the end of a staff, catch the old birds which are flying to and from their retreats. When this hazardous operation is finished, he gives a signal to his companions above, who pull him up, and divide the booty. The feathers are preferred for exportation; the flesh is partly eaten fresh, and the greater
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greater part is dried for winter's provision. In fowling from below, the party have recourse to a boat, and when they have arrived at the base of the precipice, one of the boats, instead of them falls a rope about his waist, and being furnished with a long pole, with an iron hook at one end, either climbs, or is thrusted up by his companions, the piece of rope tied to the mind of a part of his reach. By means of the rope he hoists up one of the boat's crew, and the rest are drawn up in the same manner, each of them being furnished with his rope and flying-flail.

They thus pursue their journey upwards till they arrive at the region of birds; and they wander about the cliff in search of them. They next act in pairs; one falls himself to the end of his associate's rope, and, in places where birds have nestled beneath his footing, he suffers himself to be lowered down, depending on the strength of his companion, by whom he is again hauled up; but sometimes happens, that the person above is overpowered by the weight, and in this case, both inevitably perish. The fowl is flung into the boat, which attends their operations, for the purpose of receiving the booty. The fowlers often pass seven or eight days in this perilous occupation, and lodge in the crannies which they find in various parts of the precipice.

In some remote parts of Russia there is practiced a singular invention for taking great quantities of geese or grous. They choose the most open places in the birch woods, and there they plant long stakes in the earth opposite the larger trees. On their forks is laid a horizontal flock, yellow-twigs, to which are tied small bundles of ears of corn. At a small distance from this part of the contrivance, is a kind of large funnel, or inverted cone, made with long birch twigs, thin and flexible, the lower extremities of which are fluck in the earth, very near to one another; but by spreading towards the top, forms there an opening of above a yard in diameter. In this opening is placed a wheel made of two circles that intersect each other, and are surrounded with fraw and ears of corn. This wheel turns on an axis fastened to the sides of the funnel in such a manner, that there is room enough between the flocks of the cone, and the circles, to admit of the wheel's turning freely about. The birds full perch upon the transverse flock near the tree; and when they have a mind to fall upon the corn tied to the wheel, they must necessarily flind upon one of the projecting parts of the circles of which it is composed. At that instant the wheel turns, and the gelnottc falls, head foremost, to the bottom of the trap, which is there so contracted that he cannot get out. They sometimes find the machine half full of geese.

The following method of netting or catching of wild pigeons is eagerly put forth as a direction in different parts of Italy, particularly by the inhabitants of Cava, in the Hither Principiato, and is thus defended by Mr. Swinburne. The people "assemble in parties; and if any stranger chances to fray to their rendezvous, give him a most cordial welcome. I am not in the least surprized (says Mr. Swinburne), at their passionate fondness for this sport, as I found it extremely bewitching, keeping the attention constant alive, and the springs of the mind pleasantly interested by expectation; the situations where the toils are spread are incomparably beautiful. the air is pure and balmy, and every thing around breathed health and satisfaction. When the periodical flights of rock-doves return from the northern and western parts of Europe, to gain warmer regions for their winter abode, the fowler repays to the mountain, and spreads his nets across the intermediate hollows, the passages through which the birds direct their course, to avoid unnecessary elevation in their flight. These nets are hung upon a row of large trees planted for the purpose. The branches being very thick and close at top, and the boughs lofty and bare, a great opening is left below for the teals, which reach to the ground; and, by means of pulleys, fall a heap with the fowl. Sometimes they are extended from poles that exceed the height of the trees. At a small distance is a lofty circular turret, like a column with a little capital or cap, upon which a man is stationed to watch the approach of the game. As he commands a free view over all the country, and practice has made his sight as acute as that of the lynx, he disregards the birds at a wonderful distance. The doves advance with great velocity; but the alert watchman is prepared for them; and just as they approach his post, hurls a stone above them with a fling; upon this the whole flock, whose fears have birds of prey for their great object, supposing the stone to be an enemy of that kind ready to pounce them, dart down like lightning to avoid the blow by falling under the trees; but there they rush into the jaws of death, by dashing against the net, which instantly drops, and so entangles them that not one of them can escape the active hands of the fowler. These birds are sometimes taken by dozens at one fall, and are accounted fine eating. The dexterity with which the floggers manage their weapon is very remarkable: they throw the stone to a great height without any violent effort; and even without whirling the fling round before they disfigure the pellet. In the Pyrenean mountains, where the same division is followed, the watchmen use a bow and arrow, trimmed with the feathers of a hawk."

The following simple but ingenious method of catching aquatic birds is used in Mexico by the natives. The lakes of the Mexican vale, as well as others of the kingdom, are frequented by a prodigious multitude of ducks, perees, and other water-birds. The Mexicans leave some empty gourds to float upon the water, where those birds resort, that they may be accustomed to see and approach them without fear. The bird catcher goes into the water so deep as to hide his body, and covers his head with a gourd; the ducks come to pick at it; and then he pulls them by the feet under water, and in this manner seizes as many as he pleases.

Sir George Staunton, in his "Embassy to China," (vol. ii. p. 420) informs us, that water-fowl are taken upon the Wee-Cuang hoo lake in that country by a similar device. Empty jars or gourds are suffered to float about upon the water, that such objects may become familiar to the birds. The fisherman then wades into the lake with one of those empty vessels upon his head, and walks gently towards a bird; and situating up his arm, draws it down below the surface of the water, without any disturbance or giving alarm to the whole river of which he treats in the same manner, until he fills the bag which he had brought to hold his prey. This contrivance is not so singular as it is that the same device should have occurred in the New Continent, as Ulloa affirms, to the natives of Carthagena, upon the late circumnavigation of the world."

Brasses fishing with, is a singular mode of fising practiced in some of the lakes of China, and particularly described in the account of the late embassy. Upon a lake near the imperial canal were observed thousands of small boats and rafts, constructed for this singular kind of fishing. On each boat or raft were ten or twelve birds, which, as at a signal from the owner, plunged into the water; and it was amusing to observe the enormous size of the fish with which they returned, grasped within their bills. These birds appeared to be so well trained, that it did not require either ring or cord about their throats, to prevent their following any
any portion of their prey, except what the mafier was pleased to return to them for encouragement and food. The boat used by these fishermen is of a remarkable light make; and is often carried to the lake, together with the fishing birds, by the men who are there to be supported by it. The bird trained for this purpose is a species of pelican, described by Dr. Shaw, from a specimen submitted to his inspection, as "the brown pelican or corvorum, with white throat, the body whifh beneath and spotted with brown, the tail rounded, the irides blue, the bill yellow." Staunton's emhjly to China, vol. ii. p. 588.

Bird lime, a viscid substance, prepared various ways, and from various materials, for the catching of birds, mice, and other vermin.

Bird lime ordinarily used among us is made from holly-bark, boiled ten or twelve hours. When the green coat is separated from the other, it is covered up a fortnight in a moist place, then pounded into a rough paste, so that no fibres of the wood be left, and wafted in a running stream till no moles appear, put up to ferment four or five days, skimmed as often as any thing arises, and laid up for use. To use it, a third part of nut oil, or any thin grease, is incorporated with it over the fire.

The mill-toe affords a juice even superior to that of the holly; and if a young plant of the common elder be cut through a finny juice will draw out in threads, and follow the knife like bird-lime, or the juice of holly. It seems in this tree to be lodged, not in the bark, but in certain veins within the circle of the wood. The roots of all the hirnithals also afford a tough and finny juice of the same kind, and to do the aphodel, the narcissus, and the black broony root, in a surpising quantity.

The bird-lime brought from Damascus is supposed to be made of sebiano, their kernels being frequently found in it; but this does not ensue either frock or wet. That brought from Spain is of an ill smell; that of the Italians is made of the berries of mullctoe, heated, mixed with oil, as before; to make it bear the water, they add turpentine. It is said, the bark of our willow or wayfaring shrub makes bird-lime as good as the bell.

Bird-lime is a substance very apt to be congealed, and rendered unferceivirable by 4;005; to prevent which it is proper, at the cold season, to incorporate some petroleum with it, before it is used. The method of using it is to make it hot, and dip the ends of a bundle of rods in it; then to turn them about and play them together, till a sufficient quantity is extended over them all. If strings or cords are to be limed, they are to be dipped into the bird-lime, while very hot. The cords may be put in cold, but the rods should be warmed a little. Straws are to be held while the matter is very hot; a large bundle of them should be put in at once, and worked about in it, till they are well beamed. When thus prepared, they should be preferred in a leather bag till they are used. When the twigs or cords are to be put in places subject to wet, the common bird-lime is apt to have its force soon taken away: it is necessary, therefore, to have recourse to a particular sort, which, from its property of bearing water unhurt, is called water-bird lime; and is prepared thus: Take a pound of strong and good bird-lime, wash it thoroughly in spring-water, till the hardfins is entirely removed; and then beat it well, that the water may be separated from it; then dry it well, and put it into an earthen pot; add to it as much copper's grease as will make it run. Then add two spoonsfuls of strong vinegar, one spoonful of oil, and a small quantity of Venice turpentine. Let the whole boil for some minutes over a moderate fire, stirring it all the time. Then take it off; and when there is occasion to use it, warm it, and cover the slicks well with it. This is the best sort of bird-lime for snipes, and other birds that love wet places.

In order to use the common bird-lime, cut down the main branch or bough of any bushy tree, whose twigs are thick, straight, long, and smooth, and have neither knots nor prickles. The willow and the birch trees will best anwser the purpose. Trim off all the supernuous shoots; and when the twigs are made neat and clean, let them be well covered with the bird-lime, within four inches of the bottom, but without touching the main bough from which they proceed. Some sort is necessary to lay on the bird-lime properly; in that it be neither too thick, which would give the birds a diftaste, and prevent their approaching it; nor too thin, so that it would not hold them when they touch it. Having prepared the bushes, let it be placed in some dead hedge, or among growing bushes, near the outskirts of a town, a farmer's yard, or fush station, if it be in the spring, when the birds refer to such places. If it be used in summer, let the bush be fixed in the midst of a quick-set hedge, or in groves, bushes, or white-thorn trees, near fields of corn, hemp, flax, and the like; and in the winter, near thickets of corn, hovels, barns, and inch places. When the lime-bush is thus planted, the sportsman must stand as near it as he can, without being discovered, and contrive to make such forts of notes as the birds do when they call to one another. Bird-calls may be used for this purpose; but the most expert method is to imitate with the voice the notes of call of the several birds. When a single bird is thus enticed to the bush, and fastened to it, the sportsman is to wait till, by struggling to release itself, it becomes more securely atatched, and by its fluttering it has brought other birds to the bush; so that in this way several may be caught at once.

The time of the day for this sport is from sun-rise to 14 o'clock, and from one till sun-set. Another mode of bringing the birds together is by a flake; such as, a bat folded in flight at a distance, or an owl, which is followed by several small birds, which, alighting on the lime-bush, will be entangled. The skin of an owl studded, or even the image of an owl carved on wood and painted in its natural colours, has been successfully used for the same purpose.

M. Barrers, physician at Pergnias, discovered an animal bird lime, prepared of the bulbs of a foot of caterpillars, by purifying them in the earth, steeping them in water, and then pounding and mixing them with olive oil. Fontenel. Hist. Acad. Science. 1732, p. 12.

Birds, migration of. See Migration.

Birds' nefs, in Cukery, the holes of a small Indian swallow, very delicately tailed, and frequently mixed among fowls. Mr. Maitfer, in his account of Sumatra, sir George Staunton in his embassy to China, and many other travellers of more ancient and modern date, have recited several particulars concerning these edible nefs. But we have a more minute and ample description of them, as well as of the birds by which they are formed, in the third volume of the "Transactions of the Batavian Society in the Island of Java, for promoting the arts and sciences." The birds that construct them are of a blackish grey colour, somewhat inclining to green, but gradually changing on the back to the tail, and on the belly into a mouse colour. The length of the bird, from the bill to the tail, is about 4 inches; and its height, from the bill to the extremity of the middle toe, 3 inches. The distance from the tip of one wing to that of the other, when extended, is 10 inches; the largest feathers of the wings are about 4 inches in length. The head is flat; but, on account of the thickness of the feathers, appears round, and large in proportion to the size of the

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BIRD.

red of the body. The bill is broad, terminating in a sharp extremity, and incurved like an awl. Its width is increased by a naked piece of skin, resembling parchment, which, when the bill is shut, is folded together; but when open, is considerably extended, and enables the bird, while on wing, to catch with greater ease the insects that hover it. The eyes are small, black, and large; the tongue is shaped like an arrow, and not forked; the ears are flat, rounded, naked spots, with small oblong openings, and are wholly concealed under the feathers of the head; the neck is very short, as well as the legs and wings; the thighs are wholly covered with feathers; and the very tender lower parts of the legs, and the feet, are covered with a skin like black parchment. Each foot has four toes; three before, and one turned backwards. The toes are separate to their roots; and the middle one, together with the claw, is as long as the softer part of the leg. Each toe is furnished with a black, sharp, crooked claw, considerably longer, by which the bird can easily attach itself to crags of rocks. The tail is as long as the body, together with the neck and head; when extended it has the form of a wedge, and consists of ten large feathers; the four first of which on each side are long, and, when the tail is closed, extend almost an inch beyond the neck. The other feathers descend towards the middle of the tail, and are equal to about the length of the body. The whole bird is very light and tender; ten of them together weighed little more than 2½ ounces. The Javanese call it "lawit," but those who live in the mountains, "berongdayi," or "waked," veroon, in the Malay language, signifying in general a bird.

There are two places in particular, near Batavia, where these birds are found in great numbers. The first, Calappa Nengal, lies about 10 miles south of the city; and the other, Sampa, is somewhat more distant to the south-west; but both are in that range of high land extending towards the sea, and apparently different from the large ridge that extends over the whole island. Besides these there are also other places in the same district, or at a greater distance from the coast, which either produce a few, or are carefully concealed by the Javanese, to whom they are known. The two birds mentioned above-mentioned, called by the Javanese (goa) caverns, are inhabited rock, hollow within, and pierced with numerous openings of different sizes; but so small, that they seem to be peculiarly adapted to the security of these little animals. On the outside, these rocks are covered with various kinds of tall trees; and within, they consist of grey calcareous stone and white marble. To the sides of these caverns the birds affix their small nests in horizontal rows, and to close as almost to adhere together. They are constructed at different heights, from 50 to 100 feet; and no cavity that is dry and clean is left unoccupied. But if the sides of the caverns be in the least wet or moist, the birds deject them. At day-break these birds fly abroad from their holes, with a loud fluttering noise; and in dry weather rise insensibly to such a height in the atmosphere, for the purpose of seeking their food in distant parts, that they are soon out of sight. In the rainy season they never wander far from their holes, particularly in Java, where some rocks are situated near the shore. About 1 in the afternoon they return, and confine themselves closely to their retired habitation, that none of them are seen to fly either out or in, except those that are hatching. They feed upon all sorts of insects that hover over the stagnated water; and these, by the daily extension of their bills, readily catch. Their most deterrent enemy is a kind of hawk, which slays many of them as they issue from their holes, and which the people frighten away by shouting at them. Their nests are prepared, says this writer, from the strongest remains of the food which they eat, and not of the down of the sea; or of sea-plants, as some have alleged. On this subject, however, there have been different opinions. As the habitation in which they form their nests is the middles of sea-weeds, according to Le Peire, fish-spawn; according to Dalrymple, sea-weeds; and according to Linnaeus, the animal fabrica is often found on the sea-beach, and called by fishermen bladders or jellies. In proof of his opinion, this author states, that it is known from experience, that those birds, which build their nests in the two rocks before-mentioned, have never been found on the sea coast, and could not possibly fly thither and return again in so few hours, on account of the high intervening mountains, and the stormy winds that often prevail among them. The great difference in the colour and value of these nests proves, that their constructors depends merely on the superabundance and quality of the insects on which they feed, and perhaps on the greater or less solitude of the place where they seek nourishment. Those found in the territory of Calappa Nengal and Goagadjia are exceedingly grey, and worth one third less than those produced in the territory of Sampa; and these latter are not so far compared with an excellent fort which is every year imported from Turkestan, and which is to be found on the surrounding islands, particularly to the east of Borneo. These birds occupy two months in preparing their nests: they then lay their eggs to number in), on which they sit for 15 or 16 days. As soon as the young are hatched, people begin to collect the nests, which is regularly done every four months; and this forms the harvest of those who are the proprietors of the rocks. The buufness of taking down the nests is performed by perfons accustomed from their youth to climb these rocks. For this purpose they construct ladders of reeds and bamboo, by which they ascend to the holes; or, if the caverns are too deep, they employ ship-ropes. When they have descended to the bottom of the caverns, they place bamboo with notches in them against the sides, so that these be sufficient, in order to get up to the nests; but if they cannot thus reach them, they ascend the ladders, and pull down the nests with poles of bamboo made for that purpose. There are also certain holes to which people can ascend by means of steep made of bamboo, but these are very few. This employment is very dangerous: many lose their lives in pursuing it, and one particularly those who attempt to rob these caverns at improper seasons, for guarding against whole depredations, there are small watch-houses constructed in their vicinity. The mountaineers who engage in this occupation, never undertake their labour till they have slaughtered or fenced a buffalo; which custom is continually observed by the Javanese, at the commencement of any extraordinary enterprise. On such occasions they mutter over a few prayers, anoint themselves with aromatic oil, and fumigate the holes with odourous substances. At the chief of these caverns, in the island of Java, a particular protecting female deity is worshipped, under the name of "Raton Laut Radul," or Prince of the South Sea. She is provided with a small hut, and a covered sheltered place, together with various elegant articles of dress, which no one but a prince must approach. On every Friday, when the nests are taken down, incense is continually burnt; and the body and clothes of every one who intends to ascend the rocks must be exposed to it. In order to have light in the caverns, they light torches made of the redissed gum of a large tree called "care," and the inner bark of the arek tree. The gathering of the nests continues no longer than 2 months, and may be repeated three times a year. Some say it may be done a fourth time; but the most experienced say,
that a nest, as long as it remains entire, is continually enlarged or made thicker, until it is entirely deserted by the bird, when it has become dry or hairy in the inside. When the nests have been collected, they require only to be dried and cleaned, and then they are packed in bales and sold to the Chineese. Their price varies, and depends on their whiteness and fineness. Some of them have a grey, and others a reddish appearance; those of the best sort are exceedingly scarce. They are sold at the rate of from 800 to 1400 rix-dollars per 125 pounds. This high price, and the inimitable sample of the Chineese, give rise to much dishonesty and thievery, especially as the Chineese make no scruple of bribing the watchmen with money, opium, and clothes; nor can any vigilance prevent this fraud. Calappa Nongal and Sampia formerly belonged to the Dutch East-India company; but, in 1778, the government resolved to sell them by auction to the highest bidder, and received for them almost 100,000 rix-dollars. Besides these, there are several other places of a like kind, though less important, in the same range of mountains; and there are also two or three in the high land, in the interior parts of the country, and several small ones, which are carefully concealed. Three considerable bird-mountains, Goa Dahler, Cede, and Nangafari, are situated in the government of Samarang, in Java; and these are washed by the sea, which forms its way so deep into the latter that fish may be caught in it. In these places the nests are of an excellent quality; but the steepness of the rocks, and the violence of the surf, render it very dangerous to collect them; and, therefore, a suspended apparatus of bamboos is employed for this purpose. The quantity of these nests, collected annually in the island of Java, amounts to 2500 pounds in weight. There are also bird caverns in Bantam, and the island of Sumatra, in the Andaman and Nicobar isalands, in the island of Borneo, and also in Cochin-China. The young birds are eaten both by the Javenese and the Europeans in India; but it is difficult to procure them. They are confidered as very heating; but the nests, on the other hand, when they have been boiled to a slimy kind of soups, exposed in the night-time to the dew, and mixed with sugar, are very cooling. The Javenese, therefore, use them in violent fevers; and they are faid to be perfirblished with good success for fore throats and hoarfenes. This latter use of them has probably been derived from the Chineese, who carry on a great trade by these nests, and eat many of them in the winter, because fore throats are then very common in the northern part of the kingdom, in confequence of the people accumulating themselves to fit very much over the fire. But the author of the paper, from which these particulars are extracted, was not able to discover this nourishing and strengthening quality that has been fo much extolled, though he used a confiderable number of these nests, prepared in various ways, in order to convince himself of the fact. He cauited them to be examined by able chemifs; but nothing more could be observed than that the solution preffed a weak gum with a disagreeable tafle, which perhaps might be of some ufe in flight indignations of the breaf.

These nests are, therefore, a mere article of luxury to adorn the tables of the rich. The Chineese are remarkably fond of them. After being boiled and well cleaned, they put them, along with a fat capon or a duck, into an earthen pot closely covered, and suffer them to boil for 24 hours over a flow fire, which they call "timmer"; and, on acount of this addition, the whole dish acquires a more luscious tafle. The trade in these nests has of late much increafed. The high and advancing price of them in China makes Batavia the principal mart of this commodity, which is employed, since the company have surrendered it, very advantageously by the inhabitants, to leffen the prejudicial exportation of specie.

The species of swallow that forms these nests is not to be found in China. Linnaeus gives, as a diftinguishing mark of the *hirundo efculenta*, that it has white spots only on the feathers of the tail. But the small birds in Java that conftruct the nests, have spots neither on the tail nor on any other place. The tail feathers are entirely of one colour, blackish grey above, and a little brighter below. Rumphius says of his *capodes marinae*, that the feathers of the tail were spotted, and that the breed also was speckled black and white. Valentim, in his description of the small swallow which constructs edible nests, mentions neither spots nor speckles; and only fays, that the belly was undulated black and white. If these are to be confidered as effential differences, it will follow that there are two kinds of these swallows: one with a speckled breaf, and white spots on the tail feathers; and the other, without spots or speckles. A third kind of these swallows would be thofe called "mo- mos," or "boerongiatas." These also prepare their nests of edible fabulatata; but on account of the number of small feathers, and other impurities mixed with them, they are not fit to be used; and people, therefore, endeavour, as much as possible, to exterminate them, as they spoil the habitations of the better kinds. They are diathighed from the others merely by being larger, and having their legs down to the feet covered with small feathers.

**Birds, pictures of, prepared by means of their own feathers.** For this purpose, procure a thin board of deal or wafticot, well fefioned, that it may not warp. On this paste white paper, and let it dry: then get any bird which you would wish to represent, and draw its outline on the paper, in the defired attitude, and in its nature fize, with the addition of any landscape or back-ground, &c. which you may think fift. This outline so drawn is afterwards to be filled up with the feathers from the bird, placing each feather in that part of the drawing correfponding to the part of the bird from which it was taken. To do this, cover the outline reprefentation with feveral coats of throng gum-water, allowing it to dry between each coat, till it is of about the thicknes of a fhillng. When the ground is thus prepared, take the feathers off the bird, beginning at the tail or points of the wings, and work upwards towards the head. These feathers must be prepared by clipping off all the downy part; and the large feathers must have the ifides of their shafts pared off, fo that they may lie flat. In laying them on, hold them by a pair of small pliers, and, moistening the gunned ground with water, place each feather in its natural and proper fution. Keep each feather down, by placing upon it a small leaden weight, till you have another ready to be laid on. Care must be taken not to let the gum pass through the feathers, for as to ftrain them or to adhere to the bottom of the weight, and thus pull off or disorder the position of the feathers. When all the feathers are put on, cut a piece of round paper, and colour it to refeemble the eye of the bird, and then flick it in its proper place; but the bell fiftituations for this purpose are small eyes made of glafs. The bill, legs, and feet, must be drawn and coloured from nature. When it is finifhed and adjusted to your mind, lay a fecht of paper upon it, and upon that a heavy weight to pref it down; and after it has remained in that position till it is quite dry, it may be preferved in a glafs-frame.

**Birds, prefervation of.** Many methods have been used by naturalists for preserving dead birds from corruption, in their natural form and colour. Some have taken off the skin, with all the feathers upon it, from the body and thighs, leaving the tail, legs and wings, with the whole neck and the bill, and filled it with some soft fluff, such as hay, wool,
wood, or flux. Mr. Kuckahn (ubi infra), and Dr. Lett-
son (Naturalist’s Companion, p. 12, &c.), who approve
of this method as one of the most compleat and least trou-
bleome, direct, that after opening the bird by a longitudinal
incision from the breast to the vent, separating the fatty
parts from the bones, and removing the entrails, eyes, brain,
and tongue, the cavities and the inlets of the skin should be
sprinkled with the powders (as below): the eyes to be ex-
fected, for which purpose wax may be used, or glass-eyes of
any size or color may be cheaply procured; and the head to
be stuffed with cotton or tow. When this is done, a
wire should be made to pass down the throat, through one
of the nostrils, and fixed into the breast-Lone. Wires
should also be introduced through the feet up the legs and
thighs, and inserted into the same bone; and then the
body should be filled with cotton to its natural size, and the
skin sewed over it. The attitude should also be regarded;
in whatever position the subject is placed to dry, the
same position will be afterwards retained. The powder
which he recommends is composed of ¼ lb. of corrosive
sublimate, ½ lb. of prepared or burnt sulphur, ¼ lb. of
burnt alum, ¼ lb. of flowers of sulphur, ¼ lb. of camphor
or musk, ½ lb. of black pepper, and ½ lb. of tobacco ground
coarse. The whole should be mixed together, and kept in
a glass vessel stoppered close.

This method is particularly described by Mr. Kuckahn,
Phil. Trans. vol. ix. p. 511, &c. When the above-men-
tioned process is finished in the manner which he has mi-
nately detailed, he advises to bake the birds intended for
preservation in an oven of a due degree of heat; and he ob-
erves, that baking is not only useful in such preparations,
but will also be of very great service to old ones, as it de-
tructs the eggs of infects. And it should be, he says, a
constant practice once in two or three years to bake them
over again, and to fresh wash the cafes with a liquid made
by dissolving one pound of camphor in half a gallon of spirit
of turpentine.

Others have put them into vessels full of spirit of wine, or
strong brandy; against which it has been objected that
spirituous liquors change the colours of the feathers; but
M. Reaumur concludes from many experiments, that this
objectian is groundless, and he has given several minute
directions for preferring and conveying them in this way.
Others again, especially in countries where spices are cheap,
have embalmed dead birds. Reaumur observes, that pour-
dered alum or lime will serve the same purpose. Another
method which has been sometimes practiced, is that of dry-
ing birds for preservation in a heated oven. It is of impor-
tance, however, that dried birds should be secured in boxes
or barrels sufficiently closed, that infects may not fly in
during the voyage or journey; and all the empty spaces
left in the barrel should be filled up with hemp, flax, cot-
ton, &c. The same ingenious naturalist informs us, that
quadrupeds, fishes, reptiles, and insects, may be preserved
in the same manner with birds. For Reaumur’s directions
to this purpose, see Phil. Trans. Abr. vol. xi. page 891,
&c.

Mr. Chaptal recommends the following method of pre-
paring all kinds of animals for cabinets as exceedingly
simple, and to certain in its effect that he never found it to
fail in a single instance. The matter contained in the bow-
els of the animal must be evacuated, either by gradually priz-
ning the body towards the rectum, or by injecting some liquid
which may remove every thing that stands in its way. Af-
ter this operation, the end of the rectum should be tied with
a thread, and ether should be injected with a proper instru-
ment into the body, through the mouth or bill; and when
the bowels have been filled with it, the animal is to be hung
up by the head. One of the eyes must then be scooped
out, and the brain extracted; after which the head is also
filled with ether, which must be prevented from escaping
by plugging up the eye hole. On the second or third day
the injection of ether is to be repeated; and this process is
to be continued till the animal is completely dried. While
it is gradually drying, care must be taken to give the body
its proper position; and as soon as it is completely de-
decated, it may be put up without further care or any other
preparation. Ether is preferable to spirits of wine, be-
cause, by its evaporation, it carries with it not only its own
aqueous particles, but those also which it aborbs from the
body. Besides, this method neither destroys the form of
the animal, nor tarnishes the splendour of the feathers or
hair, and is very cheap; one ounce of ether being in gen-
eral sufficient for a small bird. The process of drying, says
Mr. Chaptal, might perhaps be a little shortened by the
application of artificial heat. The theory of this process, as
this ingenious chemist thinks, is, that ether, while it evap-
orates, volatilizes the moisture in the animal body, and
by these means effects a gradual desiccation, and thus re-
moves the only cause of corruption.

The method of preferring birds in Guiana, described by
Bancroft (p. 184.), is as follows: The birds intended for
preservation, and for being conveyed to the cabinets of
Europe, are deposited in a proper vessel, and covered with
high wines, or the first running of the distillation of rum.
In this spirit they remain for 24 or 48 hours, or longer,
according to their size; till it has penetrated every part of
their bodies. When this is done, the birds are taken out,
and the feathers, which are not at all changed by this im-
merion, are placed smooth and regular. They are then put
into a machine, made for the purpose; and the head, feet,
winges, tail, &c. are placed exactly agreeable to life. In
this position they are put into an oven, very moderately
heated, where they are slowly dried; and they will ever after retain
their natural position, without danger of putrefaction.

BIRDS, singing, are the nightingale, blackbird, thrashing,
thrush, limet, lark, thrhole, canary bird, bullfinch, gold-
hich, &c. See SONG of birds.

BIRDAM, in Ancient Geography, a town of Indi, on
this side the Ganges, which, according to Polynæus, was
the capital of a people called Parnari.

BIREMIS, from bir, double, and rem, ear, in Anti-
guity, a vessel with one or more rows of oars, ranged, as
found in two fages over each other; or a vessel, hav-
ing two ranks or rows of oars placed over, and side of each
other. But the particular fabric of those vessels seems far
from being a settled point among the learned. The Roman
biremis is the fame with what the Greeks call biremis, and
flants contradingrified from trevremis, quadrisynmis, &c.

BIRINGOCIO, or Biringuccio, Vannuccio, in
Biography, a mathematitian of Sicilia, was descenced of a
noble family, and flourished about the 16th century. After
having been employed by the duke of Parma and Ferrara,
he entered into the service of the Venetians. He is said
to have been the first Italian author who wrote on the art of
fusing and casting metals; particularly for the purpose of
making cannon. His work, entitled, “Pietrochtin, &c.,”
was printed at Venice in 1549, 420; at Bologna, in 1678,
8vo; and at the same place in 1520, 1528, a 1559, 420.
A Latin translation of it appeared at Paris in 1573, 420; and
at Cologne, 1668, 420. A French translation by Jacob Vin-
cent, was published at Paris in 1552, and 1559, 420; and at
Rouen in 1577. As a metallurgical writer, who detailed his
own observations and experiments, and gave a clear and con-
rfed account of the chief processes in metallurgy, Biringer-
cio is highly commended by professor Beckman. Gen. Biog.

3 M 2

BIRKAN,
BIRKAN, in Geography, a town of Arabia, 14 miles south of Jedda.

BIRKENFELD, a town of Germany, in the circle of the Upper Rhine, and county of Spohnheim, the seat of a balthic, including 32 villages and two iron foundries. It was taken by the French in 1794; and in their new arrangement, it is the principal place of a district of the same name, in the department of Sarre. The town contains 1261, and the canton 5892 persons. This district comprehends 38 communes, and its whole territorial extent includes 1619 square miles. It is situated 30 miles E.N.E. of Treves, and 10 N.N.W. of Deux Ponts.

BIRKENHEAD, or BERKENHEAD, SIR JOHN, in Biography, a political writer of some celebrity, was mainly defended, and born at Northwich, in the county of Chester, about the year 1615. In 1632 he was entered as a fervitor in Oriel College, Oxford, and afterwards became amanuensis to archbishop Laud, who recommended him in 1640 to be chosen probationer fellow of All-Souls' College. When Oxford became the head-quarters of king Charles I. in the time of the civil war, Birkenhead was elected as a proper person to write a kind of journal in support of the royal cause; which office he discharged to the satisfaction of his employers, and with reputation and advantage to himself. The king appointed him reader in moral philosophy; and this post, more honourable than lucrative, he retained till the year 1648, when he was expelled by the parliament visitors. From hence he removed to London, where he wrote several poetical pieces, chiefly of a satirical kind, levelled against the republicans in power; and on account of his steady attachment to the royal cause, he was called the "loyal poet," and suffered several imprisonments. Upon the restoration of Charles II. he was rewarded for his loyalty. In 1661, he was created doctor of the civil law, by the university of Oxford; and about the same time, he was returned to serve in parliament for the borough of Wiltton. He was knighted in 1662, and succeeded Sir Richard Fan- thaw as master of requests. The favours which he received from the court exposed him to many severe attacks from those who opposed it; but he was exalted by the learned personages of his time, and elected a fellow of the Royal Society; and his memory has been transmitted with honour to posterity by Dryden, Langbaine, and Winckless, notwithstanding the reproaches of the whimsy Wood. He died in Wilmington, in 1679. Biog. Brit.

BIRKES, in Geography, a town of Germany, in the circle of Welfphalia and county of Juliers, one mile north of Dieren.

BIRKET EL HADJIS, or LAKE OF PILGRIMS, a lake of Egypt, communicating with the Nile, and situated 10 miles E.N.E. of Cairo, near which the companies which form the caravan to Mecca assemble.

BIRKET EL KERUN, or CAOUN, a lake of Egypt, 30 miles long and broad in the middle, but of an irregular form, and narrowing towards each end; 40 miles S.W. of Cairo. See Mochis.

BIRKHEHER, Blauer Raker, in Ornithology, the name of the garrulous roller, coracius garrula in Frisch.

BIRKIN, in Geography, a river of England, which runs into the Bollin, one mile south of Altringham in the county of Chester.

BIRKOZOWKA, a town of Poland, in the patinate of Kiov, 40 miles S.E. of Bialaerkiw.

BIRLAB, a town of Egypt, in the route from Catich to El Arith, 17 miles E.N.E. of Catich, and at a small distance east of the lake of Sebaket Bardoi, or king Baldwin's lake.

BIRLAT, a town of European Turkey, seated on a river of the same name, in the province of Moldavia, 60 miles N.W. of Galata, and 116 S.W. of Bender. Alto, a river which runs into the Siret at Dubrivatsa, in Moldavia.

BIRMAN, or BURMAN Empire, comprises the kingdoms of Ava and Pegu, and derives its name from the Birman or Burmans, who have been long known as a warlike nation, in the country formerly called "India beyond the Ganges;" its capital being Ava or Aungwa. The boundaries of this empire are not exactly ascertained. Burmah, considered as distinct from Pegu, and sometimes erroneously denominated Ava from its capital, borders on Pegu to the north, and occupies both banks of the river Ava, as far as the frontiers of China. On the north-west is Meckley, and on the Wilt Aracan and Rhoanah. On the east it has the kingdom or country of Upper Siam, which begins at a small distance eastward from the city of Ava; a ridge of mountains separating it from Burmah and Pegu. But the king of Burmah is now said to possess not only the country of Meckley, in addition to those of Pegu and Burmah, but also the whole tract which lies on the north of it, between China, Thibet, and Afiam. According to colonel Symes, to whom we are much indebted for our knowledge of the Burman empire, it appears to include the space between the 9th and 26th degrees of north latitude, and between the 92d and 105th degrees of east longitude, about 1050 geographical miles in length, and 660 in breadth. Such are the ascertained limits from the Burman accounts; but it is probable that their dominions stretch still farther to the north. The breadth, however, often varies, and is in many places very inconsiderable, on what is called the eastern peninsula. To the north this empire is separated by mountains from Afiam, and further to the east it borders on Thibet and China. On the west it is divided from the British dominions in Bengal by a range of mountains, and the little river Naaf; and the limit is continued by the sea. But the southern and easterly boundaries are somewhat obscure. If it be extended to the ninth degree of latitude, it must include a considerable portion of the Malayan peninsula, or the province of Tenasserim, and city of Mergut, formerly regarded as part of Siam; and if, on the east, it be extended to the 107th degree of longitude, it might be said to comprehend almost the whole of the country called India beyond the Ganges, as far as the mouths of the Japaneese river in Cambodia. But it does not appear that Siam is regarded as a portion of the Burman empire, and even in this case it would only extend to 103 degrees. In this state of uncertainty, however, we must satisfy ourselves with observing, that this empire constitutes the fifth grand native power in India, since Hindoostan and Peria have been divided, and may probably extend its authority over Laos and Cambodia, while it remains separated by deserts and ranges of lofty mountains from the united kingdoms of Cochinchina and Tonquin.

Of the ancient state of the countries which now constitute this empire, our knowledge is very imperfect. (See Chersonees.) With regard to their modern history, Col. Symes observs, that we are indebted for our first information, principally to the Portuguese, who made themselves masters of Malacca early in the 16th century. Accordingly the Portuguese historians inform us, that in the middle of this century four powerful states divided among them the regions that lie between the south-east coast of British India, Yunnan in China, and the easterly sea; and that their territories, besides some intervening lands belonging to petty independent princes, extended from Caffay and Afiam on the N.W. as far to the S.E. as the island of Junkfeylon. There proportions...
Birman.

Rations were known to Europeans by the names of Arakan, Ava, Pegu, and Siam; which see respectively. The empire of Ava, as it was called, is situated southward of Arakan, and separated from it by a ridge of lofty mountains. (See Arakan.) On the N.W. it is divided from the kingdom of Caffay by the river Keen-dumen; on the north it is bounded by mountains, and petty independent principalities, that he contiguous to Atam; on the north-east and east it touches on China and North Siam; and on the south its limits have been so variable, that it is not easy to define them. The city of Prome, or Pe, seems to be the original and natural boundary of the Birman empire, though by conquests it has been extended much farther to the south. Pegu is the country southward of Ava, which occupies the sea-coast as far as Martaban. (See Pegu.) The kingdom of Siam extended to the south as far as Junkfeyon, east to Cambodja and Laos, and north to Ozenme, probably the Chiansse of Loubere, and Yunnah in China. (See Siam.) These boundaries, however, may be considered more as the chain than the actual possession of each state; whilst alternate victory and defeat have occasionally extended and contracted their dominions. From the Portuguese we learn, that the Birmans, though formerly subject to the king of Pegu, became afterwards masters of Ava, and caused a revolution in Pegu about the middle of the 16th century: extending their kingdom from Maravi, probably Mergui, near Tenafalere, to the province of Yunnah in China, about 800 miles from north to south, and 250 from east to west. The influence of the Portuguese, which was for some time very considerable in the Birman and Pegu countries, was enfeated by the Dutch; and it appears that, in the beginning of the 17th century, both the English and Dutch had obtained settlements in various parts of the Birman dominions, which were forfeited by the miscalculation of the latter; so that Europeans of all nations were banished from Ava. The English, however, several years after this expedition, were reestablished in their factories at Siam and Ava, where they traded more as private merchants than on the part of the India company, in whose service they were not regularly enrolled. The supremacy of the Birman over the Peguas continued till about the year 1740, when the latter, inhabiting the provinces of Dalla, Martaban, Tongo, and Prome, revolted, and a civil war ensued. In 1744, the British factory at Siam was destroyed by the contending parties. At length the Peguas, by the assistance of some Europeans, who traded to their ports, gained several victories over the Birmans, particularly in the years 1750 and 1751; and in 1752 the capital of Ava was invested, and the Birman, after a short siege, compell'd to surrender at discretion. The loss of a long line of Birman kings was taken prisoner; but two of his sons were fortunate enough to make their escape to the Siamese, where they were kindly received and allowed of security and succour. Upon this conquest the principal inhabitants of the country about Ava acknowledged themselves vassals to the victorious king of Pegu, and accepted the preferred oath. After some time, Alompra, a Birman of low extraction, who had been continued by the conqueror in the possession of a small village called Moachatoo, determined to emancipate himself from the yoke of oppression. Accordingly, having assembled 500 followers, on whose fidelity and courage he could rely, he attacked a band of 50 Pegu soldiers, who had been stationed in Monchaboo, and put every one of them to the sword; and after several previous encounters with the Pegu force dispatched against him, he gained possession of Ava in 1753. The contest was obstinate and bloody; but Alompra, purposing his conquests, founded the town of Kangan, or Dzangon, signifying "victory achieved," and soon after chastised the people of Caffay, who had revolted from the Birman authority. In 1756 he blockaded the town of Siam, which yielded to his arms; and having deprived the capital of any foreign aid by water, he advanced against the city of Pegu, invested it in January 1757, and in about three months took possession of it. He then proceeded to subdue the countries to the end of the city, as far as the Three Pagodas, which were the ancient boundary between Pegu and Siam. Tavoy, which was once an independent principality, and recognized as such by the English in 1755, has been since added to the Birman possessions in this quarter. Alompra, triumphing in his success, determined to chastise the Siamee, who had afforded an asylum to his rebellious subjects; and for this purpose he ordered a fleet to fall to Mergui, a sea-port belonging to the Siamee, which soon surrendered; and the capture of Mergui was followed by the conquest of Tenafalere. The next object of Alompra was the reduction of the capital of Siam; but whilst he was prosecuting the siege, he was seized with a disorder which proved fatal, and laid the Siamee from destruction. Alompra, apprized of his approaching end, gave orders for a retreat; when he had arrived within two days' march of Martaban, on the 15th of May 1756, he expired, very much to the regret and sorrow of his subjects, who regarded him as their deliverer, and as a wife, powerful, and victorious sovereign. By the prudence of his counsels he secured what his valour had acquired; he was not more eager for conquest than attentive to the improvement of his territories, and the prosperity of his people; he inflicted a severe edict against gambling, and prohibited the use of spirituous liquors throughout his dominions: he reformed the courts of justice; he abridged the power of magistrates, and forbade them to decide at their private houses on criminal causes, or on property where the amount exceeded a specified sum; every process of importance was decided in public, and every decree registered. His reign was short but vigorous; and if his life had been prolonged, it is probable that his country would at this day have been farther advanced in national refinement and the liberal arts. He did not live to complete his 30th year; his person, though and well proportioned, exceeded the middle size; and though his features were coarse, his complexion dark, and his countenance somber, there was a dignity in his deportment that became his high station. Alompra, the founder of the Birman empire, was succeeded by his son Nanadagru Praw, who, after suppressing several insurrections, died in 1764, and left an infant son, Monmin; whose uncle Shemhuan, second son of Alompra, assumed the regency, and afterwards the diadem. Shemhuan, having usurped the royal power, diverted the national attention from his conduct, by declaring war against Siam; and two armies entered the country from the north and south, which, being united, defeated the Siamee about seven or eight days' journey from their capital. The consequence of this defeat was the immediate invasion of Siam by the Birmans; and after a siege of two months, the capitulation of the city. The king having withdrawn during the progress of the siege, a Siamee governor was appointed, who took an oath of allegiance to the Birman monarch, and engaged to pay an annual tribute. The Chinese, having planned the subjugation of the Birman empire, and concerted measures for adding the dominion of the Jawa and the fertile plains of Ava to their empire, advanced in the beginning of the year 1767, from the western frontier of Yunnah, with an army of 50,000 men, to accomplish their object; but they were met by the Birmans, and after a conflict which lasted three days, totally routed with very dreadful carnage. The lives of the captives were spared for the benefit of the country; various employments were assigned them; and they were encouraged to marry Birman wives, and to consider themselves...
selves as natives of the country. The Siamee, however, though vanquished, remained unsubdued; and the inherent enmity that subsists between these two nations will probably prevent either servitude or alliance on the part of the one to the other, unless they are broken by such repeated defeats as might nearly amount to extermination. As soon as it was known that the Birmans had withdrawn into their own territories, a Siamee prince assumed the monarchy, and in 1771 defeated the Birmans. The king, who had puillaniously abandoned his throne and people, is said to have perished in the woods, probably by the dagger of the fugitive. Shem- buan, the Birman sovereign, who had rebuilt ancient Ava, the metropolis of the empire, which had fallen to ruin during the late commotions, pursued his favourite scheme of extending his conquests towards the west, and having advanced within two days' march of Cospoor, the capital of Cachar, forced the raja of the province to submit to his power, by the most unequivocal proofs of vaflilage, according to the custom of the country. Shem buan died at Ava in 1776, and was succeeded by his son Chenguza, whose tyrannical conduct occasioned a conspiracy, at the head of which was Shem buan Minderage Praw, the younger brother of the deceased Shem buan, and the present monarch. Chenguza was slain in 1781, and fell unamalented, as he had lived depifted. Among other acts of savage cruelty, with which he is charged, one is his conduct towards his second wife, the daughter of one of the Attawoons, or prisy counsellors, of his court, a young woman endowed with virtue, beauty, and various accomplishments. Under the impulse of sudden rage, he accused her of infidelity, and without allowing time for cool judgment, pronounced sentence of immediate death. Accordingly the trembling and innocent victim was dragged from the palace, and inclosed in a pack of scarlet cloth, richly ornamented; thus confined, she was put on board a boat, when the vessel being suspended between the narrow necks of two earthen jars, the whole was sunk in the deepest part of the river Jarivwally. Her afflicted father, overwhelmed with anguish and deprived of all his offices, retired in despair to the city of Chagang, and waited the opportunity that soon after occurred, of being avenged. When Chenguza was forcing his way towards the royal palace, the Attawoon fetched a fafie from an attendant officer, and at one stroke cut him through the bowels, and laid him breathless at his feet; nor did any person offer to prevent or avenge the cruel tyrant's death. Shem buan Minderage withdrew the fleet of government from Ava, and founded a new city called Ummerpoora; which hee. The Birman conquests having already been extended as far as Mergui to the south, and several of the northern provinces which formerly belonged to Siam, having been reduced to subjection, and tribute, Shem buan Minderage, observing the supineness of the rajas of Arracan, and the unwieldy disposition of his subjects, and allured by the fertility of its soil, and its aptitude for commerce, determined to invade the country, and to annex it as an appendage to the Birman crown. Accordingly, in 1783, this conquest was effected. (See ARAcAN.) The Birman arms were next directed towards Siam. Although the Bir- mans could not retaiu possession of its inland parts, they maintained their dominion over the sea-coast; so that all the ports on the western shore of the peninsula, as far as Mergui, in N. Lat. 1° 25', continued inferior to them. But they still wished to obtain the island of Junkfeylon, which would give them the entire dominion of the western coast, as far as the territories of the Malay prince of Queechab, and not only enable them to monopolize the commerce of the peninsula, but prevent the Siamee from a communication with India by any other channel than that of the gulf of Siam. A fleet was fitted out in 1785 for subduing this islad; but the enterprize failed. The Birman monarch, mortified by the disappointment of his views, resolved as speedily as possible to repair the disgrace; and for this purpose he marched in the spring of 1786, from his capital at the head of 30,000 men, with a train of 20 field-pieces, which army was supported by a fleet of 16 ships, that blocked up the harbor of Junkfeylon. The sovereign, confiding in his expectations, had fearlessly entered the Siamee territories, before he was opposed by the king of Siam, and, after a furious engagement, com- pletely routed. In the commencement of the ensuing year, the Siamee invaded the vicerealty of Martaban, which comprehends within its jurisdiction Tavoy, Mergui, and all the Birman possessions towards the south; but having had un- successful siege to Tavoy, they were obliged to retreat and abandon the enterprise. In 1793 overtures for peace were made on the part of the Siamee; and they were followed by a nego- ciation, which speedily terminated in the ratification of a treaty highly favourable to the Birman interests. By this compact, the Siamee ceded to the Birmans the western maritime towns as far as Mergui; thus yielding to them entire possession of the coast of Tenasserem, and the two important ports of Mergui and Tavoy; which were acquisitions of great moment, considered either in a political or commercial light. From this statement it appears, that the Birman empire can scarcely be computed to extend beyond the 102d degree of longitude, and that only in the part to the north of Siam. The Birmans are indisputably pre-eminent among the nations which inhabit the vast peninsula that separates the gulf of Bengal from the Chinese sea; they possess a territory equal in extent to the German empire; and they are blessed with a fabulous climate, and a soil capable of producing almost every article of luxury, convenience, and commerce, which the eal can supply. After their treaty with the Siamee, they enjoyed the pleasing prospect of a long exemption from the milceries of war; but their pride and re- sentment embroiled them in fresh troubles before they had time to profit by the advantages of peace, and threatened to excite against them a foe more formidable than the Chinese, Arracaners, Peguiners, Siamee, and Caffiers. The Birman monarch, conceiving that the piratical banditti who infest the Broken islands, and commit various depredations to the injury of trade, were protected by the British flag, and that they sought refuge in the British districts, ordered a body of 20,000 men to enter the territories of the company, in order to feize the delinquent fugitives, and he stationed an army of 20,000 men at Arracan for the purpose of supporting this detachment. As the Birmans had made no previous application for redress in a pacific way, a strong detachment was formed at the presidency, and entrusted to the conduct of major-general Erkine, for reftoring this aggression. On the approach of the British general, the Birman chief proposed terms of accommodation, hinting for the surrender of the fugitives as the basis of the agreement. The general declined all treaty whilst the Birmans continued on English ground; but after a representation of the case made in person by the Birman chief, he gave hopes, that if the Birmans peaceably retired, the governor-general would institute a regular in- quiry into the grievance which was the subject of complaint. The Birman chief, professing his reliance on the declaration of general Erkine, agreed to withdraw his troops, and conducted his retreat in the most orderly manner. The matter was afterwards investigated, and the guilt of the delinquents being satisfactorily proved, they were delivered over to their own laws, by whose sentence two out of the three that had been accused underwent capital punishment. The amicable termination of this difference afford favourable opportunity for acquiring a more accurate knowledge than had hitherto been obtained, of a people, whose situation, extent of terri-
BIRMAN.

tory, and commercial connections with British India, rendered a liberal interchange with them lip, Ily desirable. The trade between Calcutta, Madras, and Rangoon, the principal Birman port, had of late years so rapidly increased, as to become an object of national importance; more particularly on account of the teak timber, the produce of Ava and Pegu, whence Calcutta and Madras drew all their supplies of wood for ship building and for various other purposes. A commerce in one article so essential, and on a general scale so extensive, as to require an annual return of Indian commodities to the amount of 200,000, was an object well worth cultivating.

With this view John Shore (now lord Teigmouth) thought proper, in 1795, to send a formal deputation to the Birman court. The particulars of this embassy are described by Col. Symes, with whom the conduct of it was entrusted. "The Birman says this writer, "under their present monarch, are certainly rising fast in the scale of oriental nations; and it is to be hoped, that a long respite from foreign wars will give them leisure to improve their natural advantages. Knowledge increases with commerce; and as they are not shackled by any prejudices of caste, restricted to hereditary occupations, or forbidden from participating with strangers in every local bond, their advancement will, in all probability, be rapid. At present, so far from being in a state of intellectual darkness, although they have not explored the depths of science, nor reached to excellence in the finer arts, they yet have an undeniable claim to the character of a civilized and well instructed people. Their laws are wise, and pregnant with sound morality; their police is better regulated than in most European countries; their natural disposition is friendly and hospitable to strangers; and their manners rather expressive of manly candour, than courteous dissimulation: the gradations of rank, and the respect due to lation, are maintained with a scrupulousness which never relaxes. A knowledge of letters is so widely diffused, that there are no mechanics, few of the peafantry, or even the common watermen (usually the most illiterate class), who cannot read and write in the vulgar tongue. Few, however, are versed in the more erudite volumes of science, which, containing many Shaneferi terms, and often written in the Pali text, are (like the Hindoo Shottars) above the comprehension of the multitude; but the feudal system, which cherishes ignorance, and renders man the property of man, still operates as a check to civilization and improvement. This is a bar which gradually weakens, as their acquaintance with the customs and manners of other nations extends; and unless the rage of civil discord be again excited, or some foreign power impose an alien yoke, the Birmans bid fair to be a prosperous, wealthy, and enlightened people."

The present capital of the Birman empire is Ummerapoora, and one of its chief ports is Rangoon; which see respectively. Its other principal towns will occur in the course of this work. See Arracan, Ava, Chiangao, Martaban, Mergui, Monchabo, Moompoora, Paya, Pegu, Pernsiam, Prome, Syran, Teniferem, Tavoy, &c. The chief rivers of this country are Irrawaddy, or the river of Ava (see Ava), whole numerous mouths and Birman very ample provide the means of inland navigation, Kandaw, Mavgya, Pintag, and the Balu. Its lakes are numerous, among which one of the largest is Toungoo. The highest range of mountains is probably that which lies on the frontier of Thibet. The other ranges pass north and south, except a small range running east and west, which supplies the sources of the river of Pegu; but their names are not known, except that of Ansonee, between Ava and Arracan. The forests are large and numerous; and fully almost every description of timber that is known in Hindoo-land; and about four days' journey to the north of the capital its grow in abundance; but the principal tree of these forests is the teak, which thrives in many parts of the empire, to the north as well as to the south of the capital. The forests, as well as the mountains, of the interior, and, in general, of the whole northern frontier, remain unexplored; and the tigers that infest them, prevent their being particularly examined.

The present sovereign of the Birman empire affixes the title of "Box," or emperor; and though the form of government be despotic, yet he is accustomed to consult a council of ancient nobles. There is no country of the East in which the royal establishment is arranged with more minute attention than in the Birman court; it is splendid without being wasteful, and numerous without confusion. The queen and princes have the title of "Praw," which is both a sovereign and a sacred appellation; and is frequently used by an inferior when adorning his superior. In the application of this term, it has been suggested, that there is an obvious analogy between the Birmans and the ancient Egyptians. "Pura," it is said, was the proper name under which the Egyptians first adored the sun, before it received the allegorical appellation of Othis, and they conferred this title on their kings and on their priests. It has been further conjectured, that the title of "Philosophic," given to successive kings of Egypt, is a corruption of the word "Praw," or "Praw," in its original sense signify the sun, and applied to the sovereign and priesthood, as the representatives of an earth of that splendid luminous. However this be, "Praw" is a principly title in the Birman empire. The eldest son of the king is denominated "Engy Teekien," or "Engy Praw," or "Engy Praw," or prince real; and as the crown devolves to the male heirs in a direct line, the son takes precedence of his uncles. Next in rank to the princes of the blood royal are the "Woongees," i.e. brothers of the great baron, who are the chief ministers of state. Their established number is four, and they constitute the great council of the nation. They sit in the "Ltoy," or imperial hall of consultation, every day, except the Birman Sabbath; they judge mandates to the "Mawoons," or viceroys of the different provinces; they control every department of the state, and govern the empire in subordination to the king, whose will is absolute, and whose power is undefined. With these are associated, for the purposes of deliberation, and of the execution of public business, four other officers, called "Woundocks," whose authority is very inferior and limited. The views and wishes of the Woongees are frequently counteracted by the interference of the four "Attawoons," or ministers of the interior, who are selected by the king to be his privy-counselors, from an opinion of their talents and integrity, and who have access to him at all times, which is a privilege which even the principal Woongee does not enjoy. There are several other subordinate officers, by whom the affairs of government, in its various departments, are transacted. There are also Woones of the queen's household, and of that of the prince-real; and each of the junior princes has a distinct establishment. The Birman government has no hereditary dignities or emoluments; for on the demise of the possessor, all honors and offices revert to the crown. The order of nobility has different degrees, distinguished by the number of rings, or small chains, that compose the "Taloe," or chain, which is the badge of the order. No subject is ever honoured with a higher degree than 12; and the king alone wears 24. Rank among the Birmans is indicated by every article of life and of ornament; the shape of the beetle-box, which is carried by an attendant after a person of distinction wherever he goes, his ear-rings, cap of ceremony, horse-furniture, and even the metal of which his spic
ingt-pot and drinking cup are made, specify and distinguish the several gradations of society; and a person who assumes the insignia of a degree, which is not his legitimate right, is subject to certain penalties. The court drefs of the Birman nobility consists of a long robe, of worked satin or velvet reaching to the ankles, with an open collar and loose sleeves; over this hangs from the shoulders a scarf, or flowing mantle, and on the head is worn a high cap of velvet, either plain, or of silk embroidered with flowers of gold, according to the rank of the wearer. Ear-rings are also a part of male drefs; persons of condition use tubes of gold about three inches long, and of the thickness of a large quill, expanding at the end like the mouth of a speaking trumpet; others wear a heavy mass of gold, beaten into a plate, and rolled up, which forms a large orifice in the lobe of the ear, and by its weight drags it down to the extent sometimes of two inches. The rank of the females is also distinguished by their drefs. The hair, which is tied in a bunch at the top of the head, and bound round with a fillet, has its peculiar and discriminating embroidery and ornaments. Over a short shift, which reaches to the pit of the stomach, and is drawn tight by strings, so as to support the breasts, is a loose jacket with close sleeves; and round the waist is rolled a long piece of silk or cloth, reaching to the feet, and sometimes trailing to the ground. When women of condition go abroad, they put on a silk shawl, resembling a long thawl, which covers their bosom, and is thrown over the shoulders, gracefully flowing on each side. Women in full drefs, flatter the palms of their hands and their nails of a red colour, for which they use a vegetable juice, and dress on their bosoms powders of fumdid wood, or of a bark called funneca, with which some rub their faces. Both men and women tinge the edges of their eyelids and their teeth with black. Men of rank wear, in common dresrs, a tight coat with long sleeves, made of mullin or of very fine nankeen, which is manufactured in the country; also a silk wrapper that encircles the waist; but the working classes are naked to the middle, except that in the cold climate they use a mantle or veil of European broad cloth, which is highly prized.

With regard to religion, the Birmans are Hindoos, not as votaries of Brahma, but ofaries of Boodh; which see. The latter contend with the former for the honour of antiquity, and are undoubtedly far more numerous. The Cingales in Ceylon are Buddhists of the purest class; and the Birmans acknowledge that they originally received their religion from that island, which they call "Zeebo." It was brought, say the Rhahaans, first from Zeebo to Aracan about 600 years ago, and thence was introduced into Ava, and probably into China; for the Birmans confidently assert, that the Chinese are Buddhists. However this be, it is allowed, that the honours of China, like the Rhahaans of Ava, wear yellow as the facerdotal colour, and that in many of their customs and ceremonies we may trace a very striking similarity. Whatever may be the antiquity of the worship of Boodh, the wide extent of its reception is unquestionable. The Birmans believe in the metempsychosis, and that, after having undergone a certain number of transmigrations, their souls will at last be received into their paradise on the mountain of Meru, which is the celestial north pole of the Hindoos, round which they place the garden of Indra, and which they describe as the seat of delights. The Birmans regard mercy as the chief attribute of the deity; and they worship God by extending mercy to all his creatures. Of the religious buildings appropriate to the Birmans worship, the temple of Shocadagon, or Dagoung, near Rangoon, that of Shoemadoor Pegu, and that of Syriam, are the most considerable. (See Rangoon, Pegu, and Syriam.) Their priets are denominated Rhahaans; and they have numerous kious or convents which differ in their structure from common houses, and much resemble the architecture of the Chinees. They are made entirely of wood; the roof is composed of different shapes, supported by strong pillars; the infinite comprehends one large hall; the whole house is open at the sides; some of them are curiously carved with various symbolic representations of the divinity. They have no apartments for the private recreation of the Rhahaans; publicity being the prevailing system of the conduct of the Birmans, who admit of no seclucia either in church or plate. The convents in the neighbourhood of Rangoon are very numerous; and hence it appears that the number of Rhahaans, and of Phlonghia, priests of an inferior order, vulgarly called Tallapoums, must be very considerable, amounting to 1500. Like the Carmelites, they go barefooted, and have their heads shaven, on which they never wear any covering. The only colour of the garments worn by the priesthood is yellow: the greatest part of their bodies is covered with a long loose cloak, that is wrapped round them; they profess celibacy, and abstinence from every sensual gratification. The prescribed punishment for a Rhahaa detected in an act of incontinence, is expulsion and public disgrace. The defendant is seated on an afs, and his face is daubed with black paint intermixed with spots of white; and he is thus led through the streets, with a drum beating before him, and afterwards turned out of the city. But such instances of degradation rarely occur. The juniors are restricted from wandering about licentiously, either by day or night; nor can any go abroad without permission from the prior of the convent. The Rhahaans never perform any of the common functions of life, which would tend to divert them from the abstract contemplation of the divine essence. They perambulate the town at the dawn of the morn in order to collect supplies for the day: and these usually consist of boiled rice mixed with oil, dried and pickled fish, sweetmeats, fruit, &c. In their walks they never raise their eyes from the ground, nor do they even flop to solicit donations, and seldom even look at their benefactors, who are more desirous to bestow than they are to receive. The Rhahaans eat only once a day, at the hour of noon; and their superfluous provisions they distribute among the indigent strangers, or the poor scholars, who daily attend them to be instructed in letters, and taught their religious and moral duties. The Rhahaans are never known to take any public and active part in politics or in war; and as the Birmans and Peguans profess the same religion, the conquerors, whoever they were, equally respected the ministers of their faith. The head of the Rhahaans at Rangoon, or the "Seredaw," lives in a handsome mansion about half a mile from the town; and values himself very much on the facerdotal titles, conferred on him by the present and late king, and which he ostentatiously displays engraved on iron plates. There were formerly numeraries of virgin priests, who, like the Rhahaans, wore yellow garments, cut off their hair, and devoted themselves to chastity and religion; but these societies have been long since abolished, as being injurious to the population of the state.

The laws of the Birmans are inseparable from their religion; and, like the latter, of Hindoo extraction. They profess to have derived them from Menu, the grandson of ramah, the first of created kings, who received the sacred Biciples on which they are founded by divine revelation, and who promulgated the code. Numerous commentaries on Menu were composed by the Munis, or old philosophers, whose treatises constituted the "Dharma Sutra," or body of law. The code of Gentoo laws, translated by Mr. Halle, is said to be a compilation from the different commentaries on Menu. These laws, as well as the religion of the Birmans, found their way into the Ava country from Aracan, and
and came originally from Ceylon, about 600 years ago. The
Birman system of jurisprudence is respectful with found mo-
rality; and is distinguished above any other Hindoo commen-
tary for perspicacity and good sense. It provides specifically for
almost every kind of crime that can be committed, and adds
an ample chapter of precedents and decisions to guide the
 inexperienced in cases of doubt and difficulty. The trial by
 ordeal, however, is disgraceful to this code, but it prevails in
all countries where the Hindoo religion is professed, and is
as ancient as their records. An instance of the exercise of
this mode of trial is mentioned by Colonel Symes. Two wo-
men having litigated a small property in a court of justice;
and the judges finding it difficult to decide the question of
right, it was agreed to refer the matter to the issue of an or-
dal. The parties, attended by the officers of the court, the
Rahasans, and a multitude of people, repaired to a tank,
or pond. After certain prayers and ceremonials of a puri-
ifying nature, the two litigants entered the pond and waded
in it, till the water reached as high as their breasts; they
were accompanied by two or three men, one of whom placed
them close to each other, and put a board on their heads,
which he prefixed down till they were both immersed at the
same instant. After continuing out of fight for about one
minute and a half, one of them being nearly suffocated,
rushed her head, whilst the other continued to swing her
ham at the bottom, but was immediately lifted up by the
man, after which an officer of the court pronounced judg-
ment in her favour, and of the equity of the decision none
of the by-standers seemed to entertain the smallest doubt.
This practice, however, and that of impression, are now
lost ground, and have of late years been disentrenched by
the judicial courts both of India and Ava. Laws dic-
tated by religion are in general conscientiously administered.
The criminal jurisprudence of the Birmans is lenient in par-
cular cases, but rigorous in others. Whoever is found guilty
of an undue assumption of power, or of any crime that in-
dicates a treacherous intent, is punished by the severest tor-
tures. The first commission of theft does not incur the
penalty of death, unless the amount stolen be above 800 kiat,
or tackal, i.e. about 100 l., or attended with circumstances
of atrocity, such as murder, or mutilation. In the former
case, the culprit has a round mark imprinted on each cheek
by gunpowder and punctuation, and on his breast the word
thief, with the article stolen; for the second offence he is
deprived of an arm; but the third inevitably produces capi-
tal punishment. Decapitation is the mode by which crimi-
inals suffer, and in the performance of it the Birman execu-
tioners are exceedingly rigid. The official hall of justice,
where the members of provincial governments, and all munici-
pal officers, are accustomed to assemble for the transac-
tion of public business, in various parts of the Birman empire,
is denominated Rhoom. Every man of high rank in the em-
pire is a magistrate, and has a place of this description and
name contiguous to his dwelling; but it is always on the
outside of the inclosure of his court-yard, and not surrounded
by any fence or railing, in order to manifest publicity, and
flrew that it is the seat of majesty and justice, to which all
mankind may have free access.

The population of the Birman dominions is not easily af-
termined with accuracy; but Col. Symes was informed, by
a person on whose testimony he could rely, that the number
of cities, towns, and villages in the empire amounts to 1,500,
without including the recent addition of Arracan. Suppos-
ing, therefore, each town, on an average, to contain 300
houses, and each house 6 persons, the result will give a po-
pulation of 1,440,000. Few of the inhabitants, he says,
live in solitary habitations, but mostly form themselves into
small societies; so that their dwellings thus collected com-
pose their towns, or villages; and therefore he concludes
that if their number, including Arracan, be reckoned at 17
millions, it will not exceed the truth.

With regard to the military and naval force of the Bir-
man, we may observe, that though every man in the king-
dom is liable to military service, and war is deemed the most
honorable occupation, the regular military establishment is
very inconsiderable. When an army is to be raised, a man-
date issue from the golden palace to all viceroys of pro-
vinces, and mandarins of districts, requiring a certain number
of men at an appointed day; and the levy is proportioned to
the population of the province or district, estimated by the
number of its registered houses. Every two, three, or four,
houses are required to furnish one recruit, or to pay 300
tackal, or about 40 l. or 45 l. in money. This recruit is
supplied by government with arms and ammunition, but has
no pay. The families of these conscripts are retained in the
district which they inhabit as hostages for the good conduct
of the soldier; and in case of defection, or treachery, his
wife, children, or parents are dragged forth to execution,
and cowardice subjects the family of the delinquent to ca-
pital punishment. The infantry and cavalry compose the
regular guards of the king; the former are armed with mus-
kets and lances, and the latter with a spear about seven or
eight feet long, which they manage on horseback with great
dexterity. The royal magazines are fixed to contain 20,000
firelocks, which are of a very indifferently kind. The most
respectable part of the Birman military force is their es-
ablishment of war-boats. The king can command, at a very
short notice, 500 of these vessels, which are formed out of
the solid trunk of the teak tree, excavated partly by fire,
and partly by cutting; the largest of them are from 80 to
100 feet long, and 8 feet broad, and they carry from 50 to
60 rowers. The prow is solid, and has a flat surface, on
which is mounted a piece of ordnance. Each rower is pro-
vided with a sword and a lance; and besides the boatsmen,
there are usually 30 soldiers, who are armed with muskets.
The attack of these gun-boats is very impetuous; and those
who conduct them advance to action with a war-song, by
which they regulate the strokes of their oars, encourage one
another, and daunt their adversaries; and when they grasp-
ple, the action becomes very severe, as these people posses
singular courage, strength, and activity. As the vessels he
low in the water, their principal danger is that of being run
down by a larger boat striking on their brosidde. The
largest of these war-boats, which are managed with surpris-
ning dexterity, both in advancing and retreating, as well as
in the time of action, do not draw more than three feet
of water. The proper weapons of the country are the spear,
the javelin, which is thrown from the hand, the cross-bow,
and the sabre; the latter of which is used by the Birmans,
not only as an implement of war, but for various purposes
of manual labour.

The revenue of the Birman empire arises from one-fourth
of all produce, and of all foreign goods imported into the
country. However, as grants to princes of the blood, great
officers of state, and provincial governors, are made in pro-
vinces, cities, villages, and farms, the rest of which they
collect for their own benefit, and money is seldom disturbed
from the royal coffers, the Birman sovereign possessess im-
mensurable treasures.

The climate of every part of the Birman empire appears to
be distinguished by its salubrity; and the natives are health-
y and vigorous. In this respect they possess a decided pre-
eminence over the encrowned natives of the East: nor are the
inhabitants of any country capable of greater bodily exer-
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tions than the Birmans. The seasons are regular, and the extremes of heat and cold are seldom experienced; at least, the duration of that intense heat, which immediately precedes the commencement of the rainy season, is so short, that the inconvenience of it is very little felt. The forests, however, like some other woody and uncultivated parts of India, are extremely pellinous; and an inhabitant of the champagne country considers a journey thither as inevitable destruction. The wood-cutters, who are a particular class of men, born and bred in the hills, are said to be unhealthy, and seldom of long longevity.

The soil of the southern provinces of the Birman empire is remarkable fertile, and produces as luxuriant crops of rice as are to be found in the finest parts of Bengal. Towards the north the face of the country is irregular and mountainous, but the plains and valleys, particularly near the river, are exceedingly fruitful; they yield good wheat and the various kinds of small grain which grow in Hindoostan, together with most of the excellent legumes and vegetables of India. Sugar-canes, tobacco of a superior quality, indigo, cotton, and the different tropical fruits, in perfection, are all indigenous products of this country. Besides the teak-tree, which grows in many parts of the Birman empire, as well to the north of Ummerapoora, as in the southern country, there is almost every description of timber that is known in India. The kingdom of Ava abounds in minerals; six days journey from Bamoo, which is a province near the frontiers of China, there are mines of gold and silver, called "Badoum"; there are also mines of gold, silver, rubies, and sapphires, at present open on a mountain near the Keendum, called "Wooooloottam", but the most valuable, and those which produce the finest jewels, are in the vicinity of the capital nearly opposite to Keoum-moom. Precious stones are found in several other parts of the empire. The inferior minerals, such as contain iron, tin, lead, antimony, arsenic, sulphur, &c. occur in great abundance; amber, of a confusion unusually pure and polished, is dug up in large quantities near the river; gold likewise is discovered in the sandy beds of streams which descend from the mountains. Between the Keendum and the Irrawaddy, to the northward, there is a small river called "Sloe Lien Kioop", or the stream of golden sand. Although the Ava empire produces no diamonds and emeralds, it affords amethysts, garnets, very beautiful chrysolite, Jasper, loadstone, and marble; the quarries of the latter lie a few miles from Ummerapoora; and it is equal in quality to the finest marble of Italy, and admits of a polish that renders it almost transparent. The sale of marble is prohibited; but great quantities are consumed in the manufacture of the images of Gaudma, which are fabricated in the city and district of Chagain; however, the exportation of those marble divinities out of the kingdom is strictly forbidden.

The commerce of the Birman empire is very considerable. An extensive trade is carried on between the capital and Yunnan in China. The principal article of export from Ava is cotton, of which, it is said, there are two kinds, one of a brown colour, of which nankeens are made, the other white, like the cotton of India. This commodity is transported up the Irrawaddy in large boats as far as Bamoo, where it is bartered at the common "jee", or mart, with Chinese merchants, and conveyed by the latter, partly by land, and partly by water, into the Chinese dominions. Amber, ivory, precious stones, beetle nut, and the edible nuts brought from the eastern archipelago, are also articles of commerce; in return for which the Birmans procure raw and wrought silks, velvets, gold leaf, preserves, paper, and some utensils of hardware. The commerce between the capital and the southern parts of the empire is facilitated by the noble river that waters the country. Several thousand boats are annually employed in transporting rice from the lower provinces to Ummerapoora and the northern districts. Salt, and gun-powder, a kind of fifth-fance used with rice, are also articles of internal commerce. Articles of foreign importation are mostly conveyed up the Irrawaddy; and some few are introduced by way of Arracan. See Arracan. Among the articles of foreign trade, which have found their way into the Birman country, nothing is held in higher estimation than the European glass-ware imported into Rangoon from the British settlements in India. The Birmans are so sensible of the advantages of commerce, and so desirous of improving it, and of thus increasing population, which they consider as much more efficient in the increase of a state than the extent of its territory, that they have, of late years, tolerated all fechts, Pagans and Jews, Mussulmen and Christians, the disciples of Confucius, and the worshippers of fire, and invited strangers of every nation to resort to their ports; and being themselves free from those prejudices of class, which checkle their Indian neighbours, they have permitted foreigners to intermediary and settle among them. The children of strangers, whatever be the left to which they belong, born of a Birman woman, equally become subjects of the state, and are entitled to the same protection and privileges, as if they had sprung from a line of Birman ancestry. To British India commercial intercourse with that part of the Birman empire called Pegu is of great importance. This interest involves three distinct objects; that of securing from this quarter regular supplies of timber for ship-building; that of introducing into the country as many of our manufactures as its consumption may require, and of endeavouring to explore a mart in the south-west dominions of China, by means of the great river Ava; and that of guarding with vigilance against every encroachment, or advance, which may be made by foreign nations to divert the trade into other channels, and to obtain a permanent settlement in a country so contiguous to the capital of our possessions. The teak timber for the construction of our ships in that part of the world is an article peculiarly interesting in a political and commercial point of view. Some of the finest merchant ships at Calcutta have been lately built of this timber. Madras is also supplied from Rangoon with timber for all the common purposes of domestic use; and even Bombay, although the coast of Bombay is its principal floridource, finds it worth while annually to import a large quantity of planks from Pegu. It is also of importance, not only to promote the exportation of timber from the maritime towns of Pegu, but to discourage the building of ships in the Rangoon river, in which the Birmans are making rapid progress. National security and commercial advantage demand peculiar attention to both these circumstances. The imports into Rangoon from the British settlements, in the year 1794-5, amounted, it is said, to more than 12,000,000; and these consisted chiefly of coarse piece goods, glass, hardware, and broad cloth; and the returns were made almost wholly in timber. The maritime parts of this great empire are commodious for shipping, and better situated for Indian commerce than those of any other power. Great Britain poises the western side of the bay of Bengal; the government of Ava, the eastern. From the mouth of the Ganges to Cape Comorin, the whole range of our continental territory, there is not a single harbour capable of affording shelter to a vessel of 500 tons burthen; but Ava comprehends, within her extent of coast, three excellent ports; Negrais, the most secure harbour in the bay; Rangoon, and Mergui, each of which is equally convenient and much
much more accessible than the river of Bengal, which is the only port in our possession within the bay. The entrance into this is an intricate and dangerous channel; but from the harbour of Negrais a ship launches at once into the open bay, and may work to the southward without any impediment beside that which is occasioned by the monsoon. The Burman empire presents such a variety of advantages as to attract from the natives of all countries. We therefore flatter ourselves with the idea of effecting something of importance in that part of the kingdom, and to guard it from foreign encroachment; and then the Burman government will be united to ours in bonds of reciprocal amity and confidence. The result of the embassy of Col. Smales, sent by our governor-general of India to the kingdom of Ava in 1795, has been the establishment of this kind of amity and friendship. To the memorial presented on this occasion, the Burman monarch replied: "I, the king immortal, whose philanthropy is universal, whose anxiety for the benefit and welfare of all mankind never ceases, direct, that all merchant ships of the English nation, who resort to Burman ports, shall pay customs, charges, warehouse hire, searchers, &c. agreeably to former established usage. English merchants are to be permitted to go to whatever part of the Burman dominions they think proper, either to buy or to sell, and they are on no account to be stopped, molested, or oppressed; and they shall have liberty to go to whatever part of the Burman dominions they choose, for the purpose of buying, selling, or bartering, &c. by themselves or their agents; and it is further commanded, that they shall be at liberty to fix a resident at Rangoon, &c. and that English ships driven into Burman ports by stress of weather shall be supplied with all necessaries, &c. at the current rates of the country; and that the enemies of England, European as well as Indian, shall not be allowed to purchase warlike weapons, lead, and powder, which restriction is extended to all nations."

The manufactures of the Burmans consist of cotton and silk, faltoppee and gunpowder, various kinds of pottery, and marble statues; they also excel in gilding, to which purpose the greatest part of their gold is applied, and several other ornamental manufactures. Their edifices and barges are constructed with singular oriental taste and elegance; the most remarkable edifice is the Shomadoo at Pegu. Their kiousms and temples, which are numerous, exhibit a very rich and fantastic kind of architecture; and their grand hall of audience, or Lotoo, at Ummcapooora, is as splendid an edifice as can be well executed in wood. Many of their houses are very simple in their structure, and are erected in a day, or even in a few hours. The requisite materials are bamboos, grafs for thatching, and the ground rattan. The whole edifice is constructed without a single nail; a row of strong bamboos, from right to ten feet high, are fixed firm in the ground, which form the outline, and are the supports of the building; smaller bamboos are then tied horizontally, by ropes of the ground rattan, to these upright polls; the walls, composed of bamboo mats, are fastened to the sides with similar ligatures; bamboo rafters are quickly raised, and a roof formed, over which thatch is spread in regular layers, and bound to the wood by filaments of rattan; a floor of bamboo is next laid in the edifice, elevated two or three feet above the ground; this grating is supported on bamboos, and covered with mats and carpets. A house of this kind, simple and expedient in its structure, is nevertheless a security against very inclement weather; and if it should chance to be blown down by a tempest, the inhabitants might escape without injury. They have other buildings, however, of a superior kind; and they were formerly constructed of various figures, pyramidal, triangular, or four-sided, surrounded with walls, and adorned with flowers and figures carved in wood, and built with arches. But the art of constructing arches has been lost among the Burmans. From many buildings that now remain, it appears, that they could formerly construct excellent brick arches, both circular and gothic; but now no one in the empire can be found sufficiently skilful to arch over the opening of a window. Masonry has fallen into neglect; the jealousy of the late princes having prohibited to private individuals the use of brick or stone houses. The Burmans have of late years made rapid progress in the art of building boats and ships; and these may be constructed in the Rangoon river for one third less than in the Ganges, and for nearly one half what they would cost at Bombay. It is said, however, that the ships of Pegu are not so firmly constructed as those in our ports. The Burmans, like the Chinese, have no coin; silver in bullion, and lead, are the current money of the country. What foreigners call a takaal, properly kint, is the most general piece of silver in circulation; it weighs ten pennyweights ten grains and three fourths; its subdivisions are the tubber, two of which make one moo; two moo one nath; four nath one takaal; and 100 takaal amount to one viss. Rice is sold by a measure called Thanquaung, or basket, weighing 10 viss, or about 56 pounds; and of measurement there are several subdivisions. The average price of rice at the capital is one takaal, rather more than half a crown, fr a basket and a half. At Rangoon and Martaban, one takaal will purchase four or five baskets. The Burman measures of length are a palm-gait, or inch, 18 of which compose the taim, or cubit. The founquaung, or royal cubit (varying according to the will of the monarch), is equal to 22 inches; the dha, or bamboo, consists of seven royal cubits; 1000 dha make one Burman league, or chain, nearly equal to two British miles and two furlongs; the league is also subdivided into tenths. The Burmans divide their time as follows. The interval in which the finger can be raised without depression, is called charazzi; 10 charazzi make one palm; 6 palm one bir-zaa, or about a minute. The day of 24 hours, commencing at noon, is divided into 8 portions, or yettes, of 3 hours each. These divisions of time are ascertained by a machine resembling the hour-glas, and sometimes by a perforated pan placed in a tub of water. They are announced by a stroke on an oblong drum, which is always kept near the dwelling of the chief magistrate of the city, town, or village; it is commonly raised on a high bamboo stage, under a roof of mats to protect it from the weather. The Burmans, whatever way they acquired it, have the knowledge of a solar year, consisting of 365 days, and commencing on the 18th day of April. But the common Burman year is lunar, and of course 11 days shorter than the solar year; it is divided into 12 months; but the Burman lunations confict alternately of 29 and 30 days, occasioning a difference between the Newtonian and Burman lunar account of 8 hours and 38 minutes. In order to complete a solar revolution, they intercalate in every third year a month of 30 days; in this third year the first and third months have each 30 days instead of 29; they likewise suppose one day over a day, and by these the number of days in three solar years amounts to 1075. But every fourth year will occasion the difference of a day on account of our leap-year. This, and some other defects in their mode of computation, are sources of confusion; in order to remedy which, their five, or mode of calculation,
has frequently been altered by arbitrary authority. The manner in which the Birman month is subdivided is peculiar to their nation. Instead of reckoning the days progressively from the commencement to the close of the month, they advance no farther than the full moon, from which they recede by retrograde enumeration until the month is finished. The Birman month is divided into 4 weeks of 7 days each. The 8th day of the increasing moon, the 25th or full moon, the 8th of the decreasing moon, and the last day of the full moon, are religiously observed by the Birmans as sacred festivals. On theft hebdomadal holidays no public business is transacted in the Khoon; mercantile dealings are suspended; handiwork is forbidden; and the Birkisi pno's take no fulfillment between the rising and the setting of the sun. The Birman era is said to commence in our year 638, and it is that which is used by the philosophers at Siam; and from them, as a more polihed nation, it has passed to the Birmans.

The Birmans are very fond of poetry and music; the former they call yellos; when repeated by a lute, it flows soft and measured to the ear; sometimes in saucce, and often in alternate rhymes. They have epic as well as religious poems of high celebrity, and they are fond of writing in heroic numbers the exploits of their kings and generals.

Music is a science which is held in considerable estimation throughout the Birman empire; and the royal library of Ummerapoora is said to contain many valuable treatises on the art. Some of the professional musicians display consider- able skill and execution, and the softer airs are pleasing even to an ear accustomed to such melody. The principal instruments are a foun, or o'arp, made of light wood, hollowed and varnished, resembling a canoe with a deck; at the extremity a piece of hard wood is neatly fastened, which tapers to the end, and rises in a kind of curvature over the body of the harp; from this curvature, the strings, usually made of wire, are extended to a bridge on the belly of the instrument; it has two folding holes, one on each side of the bridge. The size of the foun varies from two to five feet in length. The surf resembles our violin; it has only three strings, and is played on with a bow. It is said to be an original instrument of the country. The pullaway is a common flageloet. The kyzzoup is a collection of cymbals, suspended in a bamboo frame. The patola, or guitar, is a curious instrument, of the form of a crocodile in miniature; the body is hollow, with hollowing holes on the back; three strings of wire extend from the shoulder to the tail, and are supported on bridges at each extremity; the strings are tuned by means of pegs in the tail, to which they are fastened; it is played on by the finger, and is generally used to accompany the voice. The boudan is a collection of drums, of oblong form and different size, which are suspended perpendicularly in a wooden frame by leathern thongs. The whole machine is about five feet in diameter, and four feet high. The performer stands in the centre, and beats on the drums with a small stick. This instrument is always introduced in a full band, and much used in processions. The heem is the pipe of Pan, formed of several reeds neatly joined and founded by a common mouth-piece, and producing, when skillfully played on, a very plaintive melody. The Birmans are fond of flamboy and dancing; and the three last days of the solar year are commonly devoted to mirth and festivity. At Pegu they have a theatre, which is an open court, splendidly illuminated by lamps and torches, and in which dramatic performances are exhibited. Indeed, at all festivals they have dramatic entertainments, consisting of music, dancing, and action, with a dialogue in recitative. The subject is generally taken from the legends of their heroes, especially of Kama. The best actors are said to be natives of Siam; and in one of these we are told that the dialogue was inspired without art, and the action animated without being extravagant; the dress's of the principal performers were also flowery and becoming. By way of interlude between the acts, a clownish buffoon entertained the audience with a recital of different passages, and by grimace and frequent alterations of tone and countenance, extracted loud peals of laughter from the spectators. The Birmans delight in micking, and are very expert in the practice, polishing uncommon verity of countenance. By pantomimic looks and gestures, they exhibit a masterly display of the passions, making sudden transitions from pain to pleasure, from joy to despair, from rage to mirth, from laughter to tears, and of varying the expression of terror and of pity, with surprising effect. On the last day of the Birman year, the 17th of April, there is a kind of sport that is universally practiced throughout the Birman dominions, to wad away the impurities of the past year, and to commence the new year free from stain. Women on this day are accustomed to throw water on every man they meet, which the men have the privilege of returning. This palline is conducted with great decorum; and a woman who declines taking a part in it, is considered as avowing her pregnancy, and pausing without molestation. At the close of Lent, or during the whole seventh month, called Sadhen-guch, there are illuminations; every house has erected by it a kind of mall, from which are suspended one or more lamps. In the royal palace, a pyramid of lamps, at least 150 feet high, is supported by a bamboo festooning. At this time the nobles from all parts of the empire resort to court to pay their homage to the king. During the principal days and nights of these festivals, there is almost a constant succession of wrestling, dancing, music, processions, fire-works, and theatrical entertainments.

The Birman alphabet consists of 35 characters, having as many distinct sounds, exclusive of various marks and contractions, that supply the place of long and short vowels, diphthongs, &c. like the other alphabets of the Hindoo clafs. It has no representation of the vowel corresponding with our short a; this is nevertheless to be pronounced after every simple sound or consonant not supplied with another vowel, unless it be forbidden by a mark of elision placed over the letter, or excluded by the juncture of two or more consonants. The Birmans write from left to right; and though they have no distinguishing interval between their words, they mark the pauses of a sentence and the full stops. Their letters are distinct, and their MSS. are in general very beautiful. It has been the opinion of some of the most enlightened writers on the languages of the East, that the "Pali," or sacred language of the priests of Bodd, is nearly allied to the Shanircet of the Brahms. The character in common use throughout Ava and Pegu is a round Nagari, derived from the square Pali, or religious text; it is formed of circles and segments of circles, variously disposed and combined, whilst the Pali, which is solely applied to purposes of religion, is a square letter, chiefly consisting of right angles. Their common books, like those of the Hindoos in the southern parts of India, are composed of palmyra leaf, on which the letters are engraved with a stylus. In their more elegant books, the Birmans write on sheets of ivory, or on very fine white palmyra leaves. The ivory is flained black, and the margins are ornamented with gilding, while the characters are enamelled or glazed. On the palmyra leaves the characters are in general of black enamel; and the ends of the leaves, and the margins, are painted.
BIRMAN.

Painted with flowers in various bright colours. A hole through both ends of each leaf, serves to connect the whole into a volume, by means of two strings, which also pass through the two wooden boards that serve for binding. In the finer binding of books of this kind, the boards are lacquered, the edges of the leaves cut smooth and glazed, and the title written on the upper board; the two ends are by a knot or jewel secured at a little distance from the boards, so as to prevent the book from falling to pieces, but sufficiently distant to admit of the upper leaves being turned back, while the lower ones are read. The more elegant books are in general wrapped up in silk cloth, and bound round by a garter, on which the Birman has the art to weave the title of the book. In every Khoom or monastery, there is a library or repository of books, usually kept in lacquered chests. In the royal library the number of these chests was not less than 200. The books were regularly classified, and the contents of each chest were written in gold letters on the lid. Some of these books exhibited very beautiful writing on thin leaves of ivory, the margins of which were ornamented with flowers of gold, neatly executed. The library contained books upon various subjects; more on divinity than any other; but history, music, medicine, painting, and romance, had their separate treatises. Col. Symes thinks it not improbable, from the chests which he inspected, that his Birman majesty may possess a more numerous library than any potentate from the banks of the Danube to the borders of China. Books in the Pali text are sometimes composed of thin stripes of bamboo, delicately stained, and varnished over in such a manner as to form a smooth and hard surface upon a leaf of any dimensions: this surface is afterwards glazed, and the faced letters are traced upon it in black and shining Japan. The margin is illuminated by wreaths and figures of gold, on a red, green, or black ground. As most of the Birmanas are taught to read and write, they carry with them a fleet of thick and strong blackened paper, called a parawalk, or paruvok, in which they enter their accounts, copy fongs, till they can repeat them from memory, and take memorandums of any things that are curious. On these parawalks the scribes, or writers, in all courts and public offices, take down the proceedings and orders of the superior officers. It is about 5 feet long, and 18 inches wide, a fold up like a fan; each fold being about six inches, and in length the whole breadth of the fleet. They write on this with a pencil of jetettes; and the characters are effaced by rubbing them over with charcoal, and the leaves are a species of delicate.

In the recitation of poetry, the language is exceedingly melodious; even the proje of common conversation appears to be measured, and the concluding word of each sentence is lengthened by a musical cadence, that marks the period to the ear of a person wholly unacquainted with the meaning. Of the cosmography and astronomy of the Birmanas, deduced from their most ancient writings, the following particulars will be sufficient. They conceive that the universe, called loghia, which signifies successive destruction and reproduction, after it had been destroyed by fire, water, or wind, is again, of itself, restored to its ancient form. The earth, they suppose to be a plane, somewhat elevated in the centre, and surrounded by a chain of very lofty mountains. Its diameter is 1,203,400 juzana, each juzana being 44,300 cubits, or nearly 12 miles; its circumference is three times its diameter; and its thickness 240,000 juzana, of which one half is dust, and the other half a solid rock, and the whole supported by a double thickness of water, relying on twice its thickness of air, below which is a vacuum. Besides the earth, there are 10,100,000 others, mutually touching in three points, and forming a similar number of equilateral spaces, which, not being penetrated by the sun's rays, are filled with water intensely cold. In the middle of the most elevated part of our earth, the Birman writings place Menmon, the largest of all mountains, elevated above the surface of the sea 8,000 juzana, and descending as far below it, supported by three feet of carbuncles, having its eastern face level, the western glafs, the northern gold, and the southern pale-coloured carbuncle, and surrounded by seven chains of hills. In the middle of the ocean, opposite to the four cardinal points of this mountain, are placed four large islands, the habitations of men and other animals; and besides these, the Birman writers allow of a smaller size, 500 belonging to each of the larger ones. The ocean is in various parts of very different depths. All living beings are distributed into three classes; generating beings; those which are material, but do not generate; and immaterial beings, or spirits, each of which is subdivided into several distinct species. The Birman writings admit of transmigration, alleging, that in death, whether of man, beast, or any living being, the soul periinds with the body, and after this dissolution, out of the same materials another being arises, which, according to the good or bad actions of the former, becomes either a man, or an animal, &c., and they teach, that all beings are revolving in these changes, till they become entitled by their actions to Nieban, the most perfect of all states, in which they are free from change, misery, death, sickness, or old age. The Birman writings also announce the opinion of an infinite number of worlds in constant succession, without beginning and without end. These writings mention eight planets, viz. the Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, and another named Rahu, which is invisible. The Sun is 50 juzana in diameter, the Moon 49, Mars 12, Mercury 15, Jupiter 17, Venus 19, and Saturn 13; and their circumferences are triple their respective diameters. They suppose that the sun, moon, and stars revolve round the great mountain Menmon in a circle, the plane of which is parallel to the earth. The stars, according to them, pursue a constant course, without declining to the north or south; but the sun, moon, and other planets have a declination; and the sun, in proceeding from the north to the south, and from the south to the north, always touches the twelve constellations, which we call the twelve signs of the zodiac, and in the space of one year returns to the same place in the heavens from which he set out. This same revolution is performed by the moon in a month. The sun's motion, they say, is quicker than that of the moon; and by his diurnal revolution, when he is in the southern island it is mid-day, in the northern it is mid-night, in the easter island the sun sets, in the western rises. Although the sun, moon, and stars appear to us round, we are not to suppose them to be spheres, but this is a fallacy of vision. The invisible planet Rahu serves the purpose of explaining eclipses; for, being a huge monster, he takes the sun and moon either into his mouth or under his chin, and thus causes either total or partial eclipses. As to the heat and cold which are experienced at different seasons of the year, the Birmanas say, that, from the vernal equinox to autumn, the sun is always tending to the north, and the moon inclining to the south; the season is then hot, because the sun's rays, which are naturally hot, then prevail; but from the autumnal equinox to the vernal, the sun inclines to the south, and the moon to the north, and the moon's rays, which are by nature cold and predominant, produce cold. They assign seven causes of rain, of which some are physical, and some moral. These astronomical and physical ideas of the Birman writings were probably brought from Hindooistan, together with their religion and laws; but for
for a more particular account of them we shall refer to the Asiatic Researches (vol infra).

Among the Birman there are several histories, containing an account of the lives and actions performed by the different families of their princes; which histories are very fabulous, and abounded with the recital of omens and prodigies. Indeed, the Birmans are much attached to divination. No person will commence the building of a house, a journey, or the most trivial undertaking, without consulting some person of skill, in order to find a fortunate day or hour. Friday is a most unlucky day, on which no business ought to be commenced. On medicine the Birmans have several books, containing a description of 96 genera of diseases, with various recipes for their cure. Mummy is with them a favourite medicine, and they are not unacquainted with the use of mercury in the cure of lues venerea; but their mode of administering it is neither certain nor safe. Most of their medicines, however, are taken from the vegetable kingdom; and they are chiefly of the aromatic kind, nutmegs being one of their most favourite medicines. Although they are well acquainted with the plants of their country, the practice of their physicians is almost altogether empirical, and they follow certain recipes and nostrums, the efficacy of which they extol, and which have been transmitted from their ancestors for several generations. They combine with their medical practice great faith in amulets and charms. In forgery, they proceed no further than draffling wounds and letting bones. Of late the inoculation for the small pox has been introduced into Arraena.

The state of agriculture in the Birman empire is not particularly illustrated by Col. Symer. It is true, however, to be pursued with considerable avidity; and the soil in many parts is capable of cultivation, and its productions, which are naturally numerous, admit of further improvement. The cattle used in some parts of the country for tillage and draft are remarkably good; they put only a pair of them to the plough, which is little different from the plough of India, and turns up the soil very superficially. In their large carts they yoke four stout oxen, which proceed with the speed of a hand-gallop, and are driven by a country-girl standing up in her vehicle, who manages the reins and a long whip with ease and dexterity. Many of the sloping grounds are planted with indigo, but the natives suffer the hills for the most part to remain uncultivated, and only plough the rich levels. They every where burn the rank grasses once a year to improve the pasture. The Birmans will not take much pains; they leave half the work to nature, which has been very bountiful to them. In the neighbourhood of Loonghee, many fields are planted with cotton, which thrives well; Sefamum is also cultivated in this soil, and is found to answer better than rice, which is most productive in low and moff grounds. In the suburbs of Pagahm, there are at least 250 mills employed in expelling oil from the sebamum feed. In this operation the grain is put into a deep wooden trough, and pressed by an upright timber fixed in a frame; the force is increased by a long lever, on the extremity of which a man sits and guides a bullock that moves in a circle; thus turning and pressing the feed at the same time. The machine is simple, and yet efficiently answers the purpose. Waggon form a caravan for travelling from the southern country towards the capital. Of these there are sometimes as many as 18, each of which is drawn by six bullocks, and is covered with a tiled roof of bamboo, overlaid with painted cloth, for throwing off the rain. They contain not only merchandize, but also whole families, the wives, children, monksies, cats, parroquets, and all the worldly subsistence of the wag-
who incurs a debt which he cannot pay, becomes the property of the creditor, who may claim him as a slave, and oblige him to perform menial service until he liquidates the debt. His immediate relations are also liable to be attached; and innocent women are often dragged from domestic comfort, and are sold to the licensed superintendents of the tallow-tree, who, if they pollute attractions, pays a high price for them, and reimburses himself by the wages of their prostitution.

On the banks of a small creek, between the town of Manda and Baffanc, is a village called Mina-Shun-Rua, or the village of prostitutes, which is inhabited altogether by women of this description. Birman wives are said to be in general chaste and faithful; their feudal employment affording no leisure for the corruption of their minds. A woman of the highest rank seldom sits in idleness at home; her female servants, under her direction and superintendence, like those of the Grecian damas of antiquity, ply the various labours of the loom. Weaving is chiefly a female occupation; and most Birman families manufacture all the cotton and silk that are required for their domestic consumption.

The women in this country manage also the most important mercantile concerns of their husbands, and attend to their interests in all out-door manufactures; they are to the greatest degree industrious, and are said to be good mothers; and they therefore merit a higher rank than that which is assigned them, and better treatment than they experience.

The Birmans, in some respects, particularly towards their enemies and invaders, display the severity of barbarians, but in others all the humanity and tenderness of polished life. At home they manifest an amiable benevolence, administering aid to the infirm, the aged, and the sick; filial piety is inculcated as a sacred precept, and its duties are religiously observed. A common beggar is no where to be seen; every individual is certain of receiving assistance, which, if he is unable to procure it by his own labour, is provided for him by others.

Among the Birmans, marriages are not contracted till the parties attain the age of puberty; the contract is purely civil; and the ecclesiastical jurisdiction has no concern with it. The law prohibits polygamy, and recognizes only one wife; however, concubinage is admitted to an unlimited extent. Concubines, who live in the same house with the legitimate wife, are obliged by law to perform menial services for her; and when the husband dies, they become the property of the surviving widow, unless she shall have emancipated them by a specific act previous to his decease. When a young man is desirous of espousing a girl, his mother, or nearest female relation, first makes the proposal in private; if the suit be well received, a party of his friends proceed to the house of the parents of the young woman, with whom they adjourn to the dotal portion. On the morning of the bridal day, the bridegroom kindles to the maiden three long oil or tallow torches; three tubbeks, or fathes; and three pieces of white muffin; such jewels also, ear-rings, and bracelets, as his circumstances will admit: a feast is prepared by the parents of the bride, and formal writings are executed: the new-married couple eat out of the same dish; the bridegroom presents the bride with some heneep, or pickled tea, which she accepts, and returns the compliment; and thus the ceremony ends.

When a man dies intestate, three-fourths of his property go to his children born in wedlock; and one-fourth to the widow, who is the guardian both of the property and the children, until the latter attain the age of maturity. A Birman funeral is solemnized with much religious parade and external demonstration of grief; besides the mourning relations, the attendants, who follow the corpse, which is carried on a bier, are women hired for the occasion, who precede the body, and chant a dirge-like air. The Birmans burn their dead; but as the ceremony of burning is expensive, the bodies of paupers are either buried or cast into the river.

The mode of burning is as follows: the bier is placed on a funeral pile six or eight feet high, made of billets of dried wood laid over one another, with intervals for admitting a free circulation of air, so as to increase the flame. The Rahaans walk round the pile, reciting prayers to Gaudama, until the fire reaches the body, when the whole is quickly reduced to ashes, which are gathered and deposited in a grave. Perfumes of high distinction are embalmed, and their bodies are preferred in some kionum, or religious building, six or eight weeks before they are committed to the funeral pile. Honey is said to be the principal ingredient used for preserving the body from putrefaction.

As to their food, the Birmans, compared with the Indians, are gross and uncouth. Although their religion forbids the slaughter of animals in general, yet they apply the interdiction only to those that are domesticated. A wild game is eagerly sought after, and in many places publicly sold; reptiles also, such as lizards, quanias, and snakes, constitute a part of the subsistence of the lower classes. They are also extremely fond of vegetables.

Among the vegetable productions of this country we may enumerate the white pandan-tree, and the aloesmum verum, much valued for the grateful odour of their smoke; the teak-tree (tectonotheca) already mentioned; the ebon-nymyum verum, producing the true jet black ebony wood; the creamore fig, Indian fig, and banyan tree; the bogh-nia indica, manica orientals, corisaraf siribus, one of the loftiest of the palm-trees, and exoycarias Cochinichinensis, remarkable for the crimson under-surface of its leaves. To the class of plants used in medicine and the arts, we may refer the ginger and cardamom, found wild on the sides of rivers, and cultivated in great abundance; the turmeric, used by the natives of the eol to tinge and flavour their rice and other food; the betel pepper, giftaria pigeen, and 3 or 4 kinds of capicum; the jallicia tinctoria, yielding a beautiful green tinge; morinda umbellata, gamboge, and earthums, furnishing yellow dye; the red wood of the lawfonia fianoa, and Cifalpina fapan, and the indigo. The bark of the nerium antidiftericum, called codogapapa, and that of the casus cahavan, the fruit of the itrychos nax vomiica, the caffia hitula, the tamarind, and the cothen tumilum, the impalated juice of the aute, the relia of the camphor-tree, and the oil of the anees, are occasionally imported from this country for the European dispensions. The crimson laurel, sometimes accompanied by the nutmeg, thefig-bane, bamboo, and spikenard, are found throughout the whole country; the leet on dry hills; and the bamboo and fig-bane in rich swamps. The sweet potato, ipomoea tuberosa, mad-apple and low-apple (colubnum melongena and lycoperdhen), cympbea melonomba, gourits, molons, water-melons, and various other excellent plants, enrich, by cultivation, this country; and the plantain, cocoo-nut, and fogo palm, are produced more copiously.

The vine grows wild in the forests, but its fruit is much inferior for want of cultivation, and through excess of heat, to that of the south of Europe; but this country is annually supplied with the mango, pine-apple, sapindus cedulis, manteigen plum, averrhoa carambola, cutlart-apple, papaw-firg, orange, lemon, and lime, and many other exquisite fruits. The animals of the Birman empire correspond with those of Hindoostan. The wild elephants of Pegu are very numerous; and, assured by the early crops of rice, commit great devastation among the plantations that are exposed to their ravages. The king
is the proprietor of these animals; and one of his Bir-
man majesty's titles is "lord of the white elephant, and of
all the elephants in the world." The forests abound with
tigers. Their horns are small, but handsome and spirited,
hardy and active; and are frequently exported in timber-
ships bound for Madras and other ports of the confi, where
they are disposed of to considerable advantage. Their cows
are diminutive, resembling the breed on the coast of Coro-
mandel; but their buffaloes are noble animals, much superior
to those of India, and are used for draft and agriculture;
some of them are of a light cream colour, and are almost as
fierce as tigers who dare not molest them. The ichneumon
or rat of Pharaoh, called by the natives Vunbai, is found in
this country; but there is no such animal as the jackal in the
Ava dominions, though they are very numerous in the ad-
joining country. Among the birds, which are the fame
with those of other parts of India, is one called the Hen-
za, the symbol of the Birman nation, as the eagle was of the
Roman empire; it is a species of wild fowl called in India
the Braminy goose; but the natives of Ava do not defy this
bird.

The Birmanse seem to be in possession of several small islands
in the gulf of Martaban, the Magnus Sinus of antiquity,
and of others to the south and west. Symes's Embassy
to the Kingdom of Ava, 3 vols. 8vo. paflim. Asiatic Re-
searches, vol. vi. p. 103—308. See Arracan, Ava, and
Paev.

BIRMINGHAM, is justly esteemed the greatest manu-
ufacturing town in England, and we may safely affirm, that in
the quantity, variety, elegance, and utility of its manu-
factured articles, it surpasses any town in Europe. To
enable the stranger and foreigner to appreciate the ge-
cral character of this place, with its various subordinate
features, we will endeavour to depict them to the fancy, in
a concise and periphrastic narrative. Its distinguishing cha-
racteristic is appropriately displayed in the following lines
by Mr. Jago, in his poem of "Edge-hill."

"This noise, and hurry all,—the throng'd street,
The close pit'd warehouse, and the busy shop.
With nimble stroke the tinkling hammers move;
While flory and weighty the vall fledge descends,
In solemn bafe responsive, or apart,
Or socially conjoint in tuneful peal.

What various use!—Nor this alone thy praise,
Thine too of graceful form, the letter'd type!
The friend of learning, and the poet's pride."

The etymology of the name of this town is not readily at-
dained, as it has been written Bromwycham, Bromw-
ycham, and various other ways; indeed, in common con-
versation, it is frequently pronounced Bromidgham. The
town lies near the centre of the island, in the north-west-
ern extremity of the county of Warwick. It is in the
diocese of Lichfield and Coventry, in the deanery of Arden,
and in the hundred of Hemlingford. The superficial con-
 tents of the parish are 2864 acres. In 1800 here were 16,403
honsefs, 1875 of which were uninhabited. The whole pop-
ulation was 73,670, of whom 34,716 were males, and 38,954
were females.

In the scale of national importance, Birmingham bears
an exalted situation: without recurring to its ancient his-
tory, the modern inhabitants have, by laudable industry,
raised it perhaps to the acme of manufacturing and com-
mercial fame. The fagacious and elegant Burke emphati-
cally pronounces Birmingham the "Toy Shop of Europe."
This designation must not, however, be taken in its literal
fence, as the articles of utility made in this town far exceed
those intended only for show and ornament. Many of our
cities are attractive for their venerable ruins and grand cathe-
cerals, but of those Birmingham is deficient. The traveller,
who delights in feering the human race profitably employed
to their own, and their country's advantage, will disregard
the smoke which sometimes envelops the town, and discern
through the veil the bright beams of industry, the lightening
vail piles of riches: justice, however, will compel him to
acknowledge, that Providence has contrived to inundate itself
within too many dwellings of the labouring classes, pro-
ducing idleness, discontent, drunkenness, and riots, of which
several instances might be cited, exclusive of that grand con-
volution which attended the commencement of that revolu-
tion in France, which in its consequences has so severely op-
prefed this, and almost every other nation. The Ikenild-
street, one of the great Roman military roads, comes within
a mile of Birmingham, and in Sutton park and Coldfield,
four miles from the town, it remains nearly as perfect as
it just completed; one of the principal evidences of the
antiquity of Birmingham is, that it is contiguous to two
Roman roads, the Ikenild, and Shirley freets.

The family of Birmingham were lords of this manor till
1537, at which period it is said to have been obtained by
the duked of Northumberland, through the success of a de-
epanned scheme. Having endeavoured in vain to purchase
it, he contrived to make Edward Birmingham appear as an
accomplice in a highway robbery, and offered him his inter-
rest to save a forfeited life, on condition of selling him the
manor. The manor-house, which is now called the mote, still remains,
though the site has been converted into a manufactory, and
an apartment is shown, where the ancient lords held their
court-leats.

The parish of Birmingham is smaller than any in its neigh-
bourhood. Mr. Hutton observes, that when Alfred founded
a town, he allotted a much smaller space of land to it, than
when he portioned a village, obviously intending the former
for trade and commerce, and the latter for agriculture; this
circumstance seems to prove that Alfred found Birmingham a
town. "The buildings occupy the fourth-eaet part of the pa-
rish, which, with their appendages, are about 800 acres. This
part being insufficient for the extraordinary increase of the
inhabitants, he has of late extended her buildings along
the Bromgrove road, near the boundaries of Edgbaston,
and on the other side planted some of her freets in the pa-
rish of Aston."

"The situation is elevated, and the soil one solid mass of
dry, reddish sand, through which the water descends freely,
thus making even the cellars comfortable habitations; the
name author adds facetiously, that though metals of various
forts are found in great plenty above the surface, we know of
nothing below except sand, gravel, flone, and water. All the
riches of the place, like those of an empiric in laced clothes,
appear on the outside. "There is not any natural river in the
parish, but in the lower parts of the town are two excellent
springs of soft water, suitable for most purposes, one at the
top of Digbeth, the other Lady well; and at the latter place
are seven of the most complete baths in the kingdom.
They cost 3000 l. in erecting, and are ever ready for the
accommodation of hot or cold bathing, for immersion or
amusement, with convenience for sweating. That appro-
priated to swimming is 18 yards by 36, situate in the centre
of a garden, in which are 24 private undressing houses, and
the whole surrounded by a wall ten feet high."

Mr. Hutton mentions several instances of longevity,
which seem to demonstrate either that the air is too pure to
be rendered unwholesome by the smoke of the town, or that
smoke
BIRMINGHAM.

Smoke and flem are not so prejudicial to health as they have been imagined; his instances are one person aged 100, a second 103, a third 104, and a fourth 107, four upwards of 92, and 13 upwards of 80.

Birmingham is not a place a gentleman would choose to make a residence. Its continual noise and smoke prevent it from being desirable in that respect.

Many ancient families who once flourished at and near Birmingham, are mentioned by Mr. Hutton to have fallen into irretrievable decay; one instance is worth transcribing: "We have among us a family of the name of Nethercliffe, of great antiquity, deductible from the conquest; who hold, the chief parishes, and the chief offices in the county, and who matched into the first families in the kingdom, but fell with the interdict of Charles I., and are now in that low ebb of fortune, that I have frequently, with a gloomy pleasure, relieved them at the common charity board of the town."

It appears upon record, that in 1731, William de Birmingham, lord of the manor, procured an additional charter from Edward III. reviving some decayed privileges, and granting others; among the last was that of the Whitmeade fair, to begin on the eve of Holy Thursday, and to continue for four days. At the alteration of the style in 1752, it was prudently changed to the Thursday in Whitsun week, that less time might be lost to the injury of the manufacturers and their workmen. The same person also procured another fair, to begin on the eve of St. Michael, (which is commonly called the Onion fair, on account of the great quantity of onions sold at the time) both of which are at this day in great repute. The horse fair, which formerly was kept in Edgbaston-street, was, in 1777, removed to Brick-kiln-lane; and that for beafts, which used to be in the High-street, into Dale-end, in 1760.

Near Birmingham, on the London road, is Camp-hill, where the army of prince Rupert were encamped, during the siege in 1642. The inhabitants are accuited of disloyalty by lord Clarendon, for feizing the carriages which contained the royal plate and furniture. The prince, with 2000 men, had been commanded by the king to open a communication between Oxford and York, but the hardy and imprudent inhabitants of this town dared to oppose this force, with only a company of foot, and a troop of horse. Though they had thrown up some flight works, and blockaded the streets, yet the king's army forced through these trifling obstructions, and entered the town sword in hand. The earl of Denbigh, a royalist, was killed in this affair, as was a clergyman, who acted as governor for the parliament, and who refuted quarter. Birmingham had a narrow escape from destruction, for the exasperated commander ordered the place to be burnt, but some favourable circumstance confined the conflagration to a few houses in Bull-street.

The plague of 1665, was imported into the town in a box of cloaths brought to the White Hart inn. Hence the fatal poison inuinated itself through the streets and houses, destroying great numbers of the inhabitants, whose bodies soon filled the church-yard, and also an acre of land at Ladywood-green, which was afterwards called the Peat-ground.

Although some degree of eminence attached to Birmingham previously to the reign of Charles II., yet it is from that period that its rapid increase must be dated. Building lees had become common, and numbers of houses arose to accommodate the increasing population which assembled, in consequence of the cultivation of the mechanical arts.

About the year 1700, the number of streets in Birmingham was only 30, but now there are nearly 250; besides, several of the oldest are considerably improved and augmented. This will, in some measure, afford the imagination in comprehending the amazing increase of the town in size, wealth, and manufactures, during that time; and it is no presumption to suppose, that it has not yet arrived at its zenith: one instance of increase will be sufficient to point out the general improvement. Between the roads to Wolverhampton and Dudley, there were only three houses March 14, 1779. By that day twelve months they increased to 55, and March 14, 1784, there were 144. The same day in 1764, there was an addition of 813.

Thomas Sherborne, bishop of London, purchased of the ladies of the manor in 1740, land worth 400l. per annum; in 1758, the income was doubled. He always refused to let it on building leases, alleging, that his successor would be compelled to remove the rubbish at the expiration of the term; sir Thomas Gough, who held the land after the above prelate, procured an act about 1766, for setting aside the prohibitory clauses of the bishop's will; immediately he let the ground, and improved the rents to 2400l per annum; it appears from the books of the poor-rates, that less than 5000 houses pay the poor-rate dues, and more than 8000 houses are exempt; this fact denotes the prevailing deficiency of population.

Manufactures, &c. The extraordinary increase in the size, population, and prosperity of Birmingham, arises principally from its proximity to the coal mines, from the nature of the foil, from its canals, from the successful exertions of a few individuals in some manufacturing speculations, and from its being exempt from borough, and corporate laws and restrictions. To investigate and detail the whole of these causes, with their effects, would occupy more space than we can conveniently appropriate. The most prominent characteristics, however, shall be narrated. To the late John Taylor, Esq. a man of great industry and ingenuity, the public are indebted for the gilt button, the japanned and gilt snuff-box, with the numerous clas of enamels; also the painted snuff-box, at which employ, one servant earned 3l. 10s. per week, by painting them at a farthing each. In his shops were weekly manufactured buttons to the amount of 800l. exclusive of other valuable productions, and eighty guineas have been given him for a single toy made at his shop. He died in 1775, at the age of 64, after acquiring a fortune of 200,000l. His son is now partner in one of the largest provincial banking houses in England.

The greatest and most noted manufacture of this place, and perhaps in Europe, is that at Soho, about two miles from Birmingham. This is the property of Mrs. Boulton and Watt, who have advanced certain pieces of mechanism and productions of art to a state of excellence, that have excited the astonishment and admiration of nations. The large warehouses, work-shops, and the elegant mansion of the former gentleman, over the declivities of a hill, which a few years back was a barren heath, tenanted only by rabbits, and a warren'r's hut; now this once defolate scene is converted into an emporium of arts and beauties. Such are the wonderful powers of human ingenuity and industry. In 1777, this spot, with some contiguous land, was leased for 99 years, to Mrs. Boulton and Evans, who erected a house and a mill for rolling metal, &c. At Lady day, 1762, Mr. Boulton bought the whole, and removing to it soon afterwards from Birmingham, commenced the present extensive premises, which were nearly completed in 1785; at an expense of 9000l. He now admitted a partner, Mr. Fothergill, into the concern, and 30 established
Established an extensive correspondence throughout Europe. To obtain and support a reputation, every encouragement was afforded to men of genius in drawing, modelling, and other branches of the arts. An imitation of or molu in vases, tripod, and cardelabras, was adopted, accompanied by so much skill and elegance, that universal approbation followed; this led to the manufacture of wrought silver, and an application was made to parliament in 1773, for an assay office, to be established at Birmingham. The polygraphic art had its origin at Soho. This method of copying pictures in oil, by a mechanical process, was conducted by F. Epinon, who has since executed a great number of fine specimens of painting, or flaining of glafs. The encavis mode of flaining glafs, or fixing the vivid and fine graduating colours upon that transparent material, was suppos’d to be loit, but it has been revived and brought to great perfection by this gentleman. Since 1784, he has executed several large windows for various cathedrals, Churches, and gentlemen’s mansions. (See Glass-Painters.) Among the various machines, &c. invented and constructed at Soho, there is one entitled to a distinguished notice for its great national utility and importance. This is the steam engine, which has acquired extraordinary force and improvements by Mr. James Watt, one of the proprietors of the Soho firm. To him the scientific world is much indebted for various other inventions and improvements in mechanics. With a vigorous comprehension of mind, he embraces every mathematical and mechanical subject from the simplest to the most complex and profound. He procured a patent for the steam engine in 1768, and seven years afterwards, entering into partnership with Mr. Boulton, began to construct those machines at Soho. Since that period, they have been generally adopted in the mines and manufactories all over the kingdom. (See Steam Engines.) The following list of curious and useful articles are manufactured at these works, which, when fully employed, give support to upwards of 600 labourers. Buttons of all kinds; polished steel, and jetinna steel-toys; polished steel watch chains; patent cork-screws, &c. Buc- kles and latches of all sorts; plated and silver goods for the dining and tea-table, side-board, &c.; medals and coins of various sizes and metals. The late beautiful new coinage of copper, and also the re-flamped dollars; all come from the Soho mint. The coinage mid or engine first erected here in 1763, has been much improved since that period, and is now adapted to work eight machines at once, each of which will strike from 70 to 84 pieces per minute, the size of a guinea, or between 4,000 and 5,000 per hour. Thus the eight machines will work between 30,000 and 40,000 coins in one hour. These machines are operated on by the steam-engine, and perform the following processes: 1st. rolling the mallefs of copper into sheets; 2nd, fine rolling of the same cold, through cylindrical steel rollers; 3rd, clipping the blank pieces of copper for the die; 4th, shaking the coin in bags; 5th, filing both sides of the coin, and milling it, at the same time displacing it, and placing another for the same operation. To its other properties, this ingenious machine adds the almoit magical one of preventing fraud, by keeping an accurate account of every coin which passes through it. Dr. Davison has described this singular apparatus in the following apposite poetical lines:

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"Now his hard hands on Mona’s refted creff,
Bofom’d in rocks, her azure ores arref;
With iron lips his rapid rollers feize
The lengthened bars in their expansive fqueeze;
Defeating screws with ponderous fly-wheels wound
The tawny plates, the new medallion’s round;
Hard dues of steel, the cuprous circles cramp,
And with quick fall, his lofty hammers flam.
The harp, the lily, and the lion join,
And George and Britain guard the splendid coin."
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Rolled metals of all kinds of mixtures, are prepared here; besides mechanical apparatus, large and portable; also copying machines, and in short, almost every sort of article for use or ornament.

Besides the manufactories already named, Birmingham contains several others, which are entitled to our consideration; and although we cannot allow space for particulars, yet we muft not pass them altogether unnoticed.

Melfes. Richard’s in High-street, is styled the toy-shop of Birmingham; the elegance and variety of the articles are not to be equalled, with the exception of the show-room at Soho. Mr. Clay’s Japan manufactury is not less celebrated, particularly when it is considered that the Japan is fixed on common brown paper. To those may be added Clarke and Askone’s manufactury of whips. Gill’s gun, bayonet, and sword manufactury, suppos’d to be one of the best in the world; and Gilton’s for sporting guns. Previous to the reign of William III., guns were mostly imported from Holland; but that monarch having once expressed some regret at this circumstance, and deplored the necessity of finding abroad for the article, Sir Richard Newm.-gate, M.P. for Warwickshire, being afeend, afforded the king that his constituents would undertake to supply the demands of government. An order was given, and being readily and correctly executed, Birmingham has continued from that period to be the great and principal place of manufacture for this destructive weapon. See Guns.

Leather appears to have been manufactured here in great quantities in the early periods of the history of Birmingham; but in 1793, there was but one tanner in the place.

Within the last century, the manufacture of steel into almost every kind of toy and ornament took its rise: a large street bears the name of Steel-house-lane, from the extensive works carried on there. Here are also very large brws works erected on the banks of the canal, on the road to the five ways, near which stand the ruins of the mansion built by the late John Dalkeithville, who made great improvements in the art of printing. See BARKERVILLE.

Places of Amusement and Curiosity. In New-street is a museum, or repository of natural and artificial curiosities, the property of J. Bisset, a gentleman who has published some ingenious poems and useful books. His "Magnificent Directory," is a novel, handfome, and useful work, in which are contained elegantly engraved, emblematical cards of addresses of a great number of the merchants, manufacturers, tradesmen, &c. throughout England.

The first Theatre established at Birmingham was situated in Moor-street about 1740; that in King-street was erected 1765, and enlarged 1774; in the same year it was transferred to a religious society; and another built in New-street, at an expense of 5600l. and managed with great success by Mr. Yates. In 1791, it was burnt by some incendiaries, who have never been discovered; since that period, the proprietors have rebuilt it in a very splendid manner, for 14,000l, with an assembly room and a tavern annexed to it. Mr. Macready of Covent Garden theatre, is the present manager, who generally presents his audiences with the best London performers during the summer months. Concerts and musical parties are held weekly during winter; and the summer produces a variety of public gardens, the principal of which are Vauxhall and Spring-gardens.
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Government. Birmingham is governed by three elected magistrates; the officers chosen annually are the high bailiff, who inspects weights and measures, and the markets; the lower bailiff, who summons juries, and chuses all the other officers; two constables and one headborough; two high tallowers, who examine the quality of beer and its measure; two low tallowers or meat coniers, who inspect the meat expeled to sale, and cause that to be destroyed which is unfit for use; two officers, and two leather-sellers, whose offices are now only nominal.

Deritend, a baunet of Birmingham, sends its inhabitants to the court leet of that town, where all the above officers are chosen and sworn, in the name of the lord of the manor.

An act of parliament passed in 1752, which established a Court of Requests, consisting of 75 commissioners, three of whom are a quorum; they sit every Friday morning in a room of the Red Lion inn; the clerks attend to give judicial assistance, who are also professors of the common law, and chosen by the lord of the manor and the commissioners for life: ten of the commissioners are ballotted out every other year, and ten others elected from among the inhabitants. The beneficial effects of a humane society for the recovery of suspended animation were first extended to Birmingham in 1790. About the same period a committee of respectable inhabitants was established to watch over the common interests, under the title of the "Commercial Committee."

In 1791, W. Villars, esq., then high bailiff, opened a market for hay, straw, &c.

A public library was founded in 1779, which has flourished greatly, and contains nearly 10,000 volumes, supported by upwards of 500 subinbers. An elegant pile of building was erected in Withering-street for the purposes of the institution in 1797. A rival made its appearance in 1795, with every prospect of success; besides these, there are medical and law libraries, and many reading factories. Birmingham contains two churches, and four chapels; besides several meeting-houses.

The St. Martin's church, denominated the Old church, was raised previously to the year 1500. It is of stone, and occupies the site of, or is the first faced building belonging to the place. In 1690, it was thought necessary to raise the church and tower with brick. The walls support the arms and monuments of several titled and ancient families. Under the south window are two of white marble, one of which is supposed to have been erected for William de Birmingham, who was captured by the French at the siege of Blegard in 1299. He wears a short mantle, &c., and bears a shield with the bend lozenge. This church was repaired and altered in 1786, at an expense of 400l. The patronage belonged to the family of Birmingham till 1517, since which period it has been possessed by the Dudleys, the crown, the Marrows, the Smiths, and finally the Tenants. The rectory was valued in the king's books 1541, at 5l. per annum, and in 1556, at 15l. 3s. 4d. The income is now upwards of 1000l. and expected to be 2000l. after the expiration of certain leases.

St. Philip's, or the New church, is a handsome pile of building, but how Mr. Hutton or any other person could fancy and say that the pile erected is after "the model of St. Paul's in London, but without its weight," is to us unconceivable, as there is not a line of it that reminds the spectator either of the dome or turrets of the metropolitan edifice. It must be allowed that the tower of St. Philip's falsifies with an attic and diminutive cupola, but there ends the resemblance. This church is advantageously situated on an eminence, and the site was given by Robert Philips, esq.

It was begun by act of parliament in 1711, under a commission consisting of 20 of the neighbouring gentry appointed by the bishop of the diocese under his episcopal seal. In 1715, it was consecrated, and finished in 1740, at the real cost of only 500l. though the estimated value was nearly 20,000l. This circumstance arose from the gift of materials, &c. The church-yard consists of four acres, and is intersected by handsome walks, shaded by trees in double and treble rows, and is surrounded by elegant buildings. Two thousand persons may be conveniently accommodated in St. Philip's church, which has contained nearly 3000. William Higg's, first rector, founded a theological library for the use of the neighbouring clergy, and bequeathed 200l. to augment it. The Rev. Spencer Maddan erected a room in 1792, adjoining the parsonage, and termed it the parochial library. The rectory is worth about 300l. per annum.

St. Bartholomew's Chapel, capable of containing 800 persons, was erected in 1749, on a site given by John Jennins, esq., an opulent landholder of Birmingham. Mrs. Jennins, through the good offices of Mrs. Weaman, added 1000l., and the remaining sum was received in contributions from pious inhabitants. The chapel and tower are handsome, and the former presents a line north and south. The altar-piece is the gift of Basil, earl of Denbigh, and the communion plate is of Mrs. Carlyle's.

St. Mary's Chapel was erected in 1774 on a spot of ground given by Mary Weaman, whose family has the patronage. The incumbency is valued at 200l. per annum.

St. Paul's Chapel is a stone building erected in 1779, by virtue of the same act which founded St. Mary's. Charles Colmore, esq., gave the ground; a steeple is intended, and the east window was decorated in 1791, with painted glass, representing the conversion of St. Paul, by Francis Eginton, who received 400 guineas for the fame.

The house of a celebrated physician of Birmingham, Dr. Afs, was purchased in 1792 by an attorney, who converted it into an elegant chapel, at the expense of his own funds, when he caused the service of the church to be conducted by a numerous choir, accompanied by an organ, Dr. Croft, and some other clergymen, afterwards purchased it, and engaged to officiate there regularly. The congregation chiefly consists of soldiers from the neighbouring barracks.

Diffenting Meeting Houses. Old Meeting-house received its name from the old meeting erected in the reign of William III, which was destroyed in 1791 by the mob. The trustees recovered 1300l. 7s. 5d. damages, and rebuilt the present building, at an expense of 2000l.

The New Meeting built 1730, shared the fate of its parent in 1791, and has never been rebuilt. The celebrated Dr. Priestley professed over the spiritual concerns of this place of worship at the period of its destruction, and narrowly escaped personal injury, or perhaps death, from the furious populace. He fled, and finally retired into exile, within the state of Pennsylvania, where he died 1804, with the fame of an excellent philosopher and experimentalist. (See Priestley.) The trustees having lost their licence, could not recover damages, but the king granted his warrant upon the treasury for 2000l.

The Union Meeting in Livery-street, originally an amphitheatre for the exhibition of equinarian excels, being unoccupied at the period of the riots, the congregations of the two meetings hired, and converted it into a place of worship. After the re-erection of the old meeting, they separated, resigning the Union meeting to the new meeting assembly.
assembly, who occupy it till their place of worship is re-built.

Carrs-Lane Meeting, a kind of chapel to the old meeting, was erected in 1748. This society has 800L. bequeathed by Mr. John England in 1771, and 40L. 18s. per annum, termed Scott's trust.

A Baptist Meeting in Canon-street, was founded in 1738, and has continued prosperously to the present period.

The Quakers have a meeting in Bull-street, frequented by a large, peaceable, and rich congregation; behind it is a spacious burial-ground. The methodists are now very numerous; previous to 1782, there was but one congregation, whose place of worship had been a theatre; whence they removed to a splendid meeting in Cherry-street, erected at an expense of 1200L. John Webbey, their chief clerk, preached in it for the first time July 7, in the above year; three others have since been erected and purchased in Coldhill-street, Deritend, and Newhall-street. The site was erected as a new Jerusalem temple, for the Swedenborgians, but in too magnificent a style for their revenues. The methodists bought it, and the original pellicorns built a smaller temple.

A small Roman Catholic chapel is situated at Eafly-hill, in the place of one destroyed during the destructive riots. A Jewish synagogue, a baptist's meeting, and an independent meeting, lady Huntington's meeting, and some other places of worship, are found in this town, which, like most manufacturing places, is distinguished for its number of dissenters of different sects.

Charities. Some of the streets of Birmingham are kept in repair by emoluments arising from small estates. William Lench, who lived in the reign of Henry VII., bequeathed certain estates to the town, in trust to sixteen inhabitants, for repairing the streets. This person founded the almshouses in Steel-house lane for poor widows. Pentham's trust is 100L. per annum, and applied to teaching poor children reading, and for clothing ten poor widows. The date of the donation is 1712. Mr. Crowley gave in 1733, six houses for the support of a school for ten girls.

The Free School was erected on the site of the gild of the holy crosses, which had an endowment of lands for the maintenance of two priests, worth twenty marks per annum, given by Thomas de Shefledon, John Colshill, John Goldsmith, and William Astilowe. In 1593, the bailiffs and inhabitants obtained a patent for augmenting the foundation, and adding a brotherhood, which flourished till the general dilution, and was then valued at 31L. 23. 10L. per annum. Edward VI. granted the lands belonging to the gild in 1552, at the suit of the inhabitants to nineteen persons, as bailiffs and governors of the free grammar school of king Edward VI., to hold in common tenure at a rent of 206. per annum. Their successors erected the present building in 1707, which is large and handsome, has a neat tower in the centre, and a statue of Edward VI. in front. The chief master's salary is 120L, the second 60L, two others 40L each for writing and drawing, and a librarian 10L. There are seven exhibitions of 5L. per annum each for the university of Oxford, and the reductions are valued at 1200L. per annum.

The Blue Coat School was erected 1724, but enlarged and improved in 1741, at an expense of 2500L. The revenues are 1250L. and 150L boys and 40 girls receive the benefit of the institution.

The Dif fillter's Clarity School was held at the old meeting, but after that was destroyed, a building was purchased in Park-street, and has been much improved. The children received are 40 boys and 20 girls.

The Workhouse erected 1733, cost 112L, a wing was added for 200L in January 1740, and another in 1779, at an expense of 1100L. The inhabitants pay a rate of 6d. in the pound, which raises 17,000L. per annum, and relief is afforded to 7000 persons. There are twelve overseers.

The General Hospital was erected 1766, and two wings were added 1791. It is supported by voluntary contributions, and many large bequests; the physicians generally give their attendance gratis.

The Prisons in Peck-lane and Deritend are disagreeable and unhealthy, and both are licensed as public houses.

The Canal between this place and Wednesbury, was made in consequence of an act obtained in 1767. It is twenty-two miles in length, uniting with the Staffordshire canal; the shares were 140L. each, and the expense 70,000L.; they sold in 1782 for 370L. each, and in 1792 for 150L. Sir Thomas Gooch leased the proprietors six acres of land at 47L. per annum, which they converted into a wharf, and erected a handsome office on it. The boats are drawn by one horse, and are about twenty tons burden. Coals are little more than half the price they were before this canal was made. Several other canals, equally beneficial, have since been completed, opening a communication between this town, and almost every principal town in the kingdom.

The Barracks stand on five acres of land, held by government at one penny per yard. They were erected in 1793 for 13,000L., and will accommodate 162 men.

There are three extensive Breweries near Birmingham, Richards's in Deritend for ale, Giles and Forreells, W.irlomelane, for ale and porter, and the Britannia, Walmer-lane, belonging to Clay and Co.

The riots, already alluded to, constitute an unpleasant feature in the history of this town, and whilst they serve to characterize the folly and intoxication of the lower classes of society, will, we trust, operate as a warning example to the rising generation. A few parsons assembled at the hotel Birmingham, July 14, 1792, to celebrate the anniversary of the French revolution. A mob collected round the house, broke the windows, and immediately proceeded to Dr. Priestley's new meeting. This, and the old meeting, were soon burnt to ashes, and the doctor's house and furniture, with his valuable library, apparatus, and MSS. thred the fame devastating fate. On July 15, the mob of John Ryland, esq. at Ealby-hill, and Bordelay-hall, the seat of Lord Tylor, esq. together with the house, flock in trade, books, furniture, &c. of Mr. Hutton, author of the "History of Birmingham," were destroyed. Saturday the 16th witnessed the destruction of Mr. Hutton's house at Stitley, the residences of George Humphreys, William Ruffel, and John Tylor, esqrs. The latter, Bordelay-hall, was occupied by lady Carhampton, mother to the duchess of Cumberland, but neither her blindness through age, nor connection with the king, could prevent the mandate of removing her furniture from the mob, who frantically offered to affilt: "She was therefore, like Lot, hallowed away before the flames arose, but not by Angels." The revered Mr. Holton's and Mr. Harwood's houses were next burnt; those of the Rev. Mr. Coates, Mr. Hawkes, and Thomas Ruffel, esqrs. were plundered. On Sunday the 17th, Kingswood meeting perished in flames, the parsonage-house, and that of Mr. Cox, licensed for public worship. The mob this day plundered Edgbaston-hall, Dr. Withering's, and attacked Mr. Male's house, but hearing in the evening, that a troop of horse approached, they gradually dispersed, after destroying property to the amount of 60,000L. To reimburse the sufferers, an act was obtained in 1793. The war succeeding, greatly injured Birmingham, and this cannot be more clearly
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clearly proved than by referring to the 1875 uninhabited houses in the year 1800. There are two morning papers published at Birmingham; Art's Birmingham Gazette, and Savi-ney's Birmingham Chronicle, &c. Mr. Swinnery also carri'es on a considerable type foundry, which is the only pro-
vincial one in the kingdom. "This neighbourhood," says Mr. Hutton, "may justly be deemed the last of the arts, but not the last of the gentility. None of the nobility are near us, except William Legge, Earl of Dartmouth, at Sandwell, four miles from Birmingham. The principal houses in our environs are those of the late Sir Charles Holte at Alton; Sir Henry Gough Calverley at Edgbaston; George Birch, esq. at Handsworth; John Gough, esq. at Perry, and John Taylor, esq. at Bordesley, and at Mofly, all adjoining to the manor of Birmingham; exclusive of these, there are many retreats of our right inhabitants, acquired by com-
ercial success." Hockley Abbey, near Soho, is the resi-
dence of Mr. Richard Ford, an ingenious smith, who had the honour of presenting his Majesty with an iron carriage made by himself. It is a modern curious building, with the upper part representing a ruin, and is surrounded by beau-
iful grounds and walks, interfered with fanciful curvatures. The most confiderable feats in the vicinity of Birmingham, are Hagley, 15 miles distant; Edville, 18 miles distant; and the Leafoxes, five miles distant. The lat-
term will long be preferred in the memory of every reader of Sherf-ton, whose creation it was, and whose tale it dis-
played in an eminently degree. It now belongs to Charles Hamilton, esq. who judiciously restored the neglected beau-
ties of the place. Hagley, the seat of Lord Littleton, has been particularly celebrated in the writings of Pope, Thompson, Hammond, and other poets. Edville, the seat of the earl of Stamford, is a scene of great natural beauty. For further particulars relating to Birmingham, its manufac-
tories and neighbourhood, see Hutton's "Hist. of Bir-
mingham," 8vo. Shaw's "Hist. of Staffordshire," vol. 1. A compo-
sition to the Leafoxes, Hagley, and Edville," 12mo. Bisset's "Poetic Survey round Birmingham," 8vo. Phil-
lips's "History of Inland Navigation," 4to. &c.

BIRON, ARMAND DE GONTAULT, baron in Biogra-
phy, was born about the year 1724, and rose gradually to the con-
dition of a page to Margaret queen of Navarre, to the rank of marquis of France, which he obtained from Henry III in 1577. After the death of this king, he was one of the first to acknowledge Henry IV, as lawful prin-
cipal of the crown, and served him with advantage at the battles of Argues and Ivry. At the close of the action, to the victorious issue of which he contributed, by his com-
mand of the reserve, though he was engaged, he said to Henry, who had much expostulated himself, "You, Sir, have acted the part of Biron to day, and he has served yours." Under Henry III he occupied the post of lieu-
tenant-general of Guetemplate, in which he gained great advan-
tages over the Cavailliés; and he also reduced part of Normandy to the obedience of Henry IV. To his son, who solicited a small force for the purpose, and with the promis-
se of raising the army of the dukes of Parma and Mauvenc, he replied: "I believe you may; but then we shal-
not have nothing farther to do but to plant cabbages at Biron." Soon after, in 1592, he lost his life by a cannon ball at the siege of Epernay. In his military character, he was a rigid disciplinarian, and required prompt obedience. When an officer, whom he had commanded to burn a house, defied an order to this effect, under his own hand, Biron instantly discharged him, alleging "I would have nothing to do with people who were afraid of justice; and that every soldier who dared a pen, must tremble at a sword." He was a polite scholar, but of a mercenary and intemperate disposition. He wrote "Commentaries" of his transactions, which were lost. Gen. Dict. Nouv. Dict. Hist. Mod. Un. Hist. vol. xxi. p. 546. &c.

BIRON, CHARLES DE GONTAULT; duke of, the eldest son of the preceding, was born in 1672: and having served under his father, he distinguished himself in several battles and sieges. Henry IV. distinguished him by tokens of for-
bearance and favour, on account of his faithful and active services. He created him admiral of France in 1592, mar-
shal and governor of Burgundy in 1594, and honoured him with erecting the barony of Biron into a dukedom and peerage. He also employed him in several important diplomatic embassies; but his pride and ambition rendered him incapable of gratitude. Allured by flattering pro-
pects, he engaged with Spain and Savoy in a conspiracy against his master; and at length his haughty conduct caused him to be arrested for his treasons, tried, and con-
demned to lose his head; and the sentence was executed in the court of the battle, July 31, 1622. He submitted with reluctance, and betrayed cowardice at the time of his death. He was vain, arrogant, and malicious; he changed his religion twice before he attained the age of 16 years, and manifested a total want of principle and integrity. His passion for gaming reduced him, notwithstanding his race pertency, to various difficulties; and he was only extirpate when he was actively employed. Although the king in-

BIRON, in Geography, a town of France, in the depart-
ment of the Dordogne, 34 leagues south of Belvez.-Alto, an island in the puit of St. Lawrence, 26 leagues west of Cape Annula. N. lat. 45° 56'. W. long 61° 5'.

BIROSTRIS, in Conchology, a species of Bella, that inhabits Java. The shell has two beads, which are ellip-
soidal and smooth; margin thickened outwards. Gracilis, Liger. This species is not unlike Bussus veron, but is smaller, being only about the size of a lemon; and it is also narrower, in such a manner that it is not uniform; bic- kne equal, obliquely truncated, and one of them a little a-

BIROTA, Birodum, from bis and rata, wheel, a kind of vehicle denominated from the two wheels wherex on it moved. The biota, by the constitution of Cailantine, was drawn by three mules, and carried 100 pounds weight; by which it was distinguished from the ricka, which carried 150 pounds, and was drawn by eight, and in winter by ten mules.

BIRR, in Geography, or, as it is called by act of parlia-
ment, Parson's Town, the largest port and market town in the King's county, Ireland, situated on the river called the Little Boyne, which divides the King's county from the county of Tipperary, on the south west. This town has Breweries, Distilleries, sail-boat, cloth and forge manu-
factories, a bank, an excellent market, and a barack for two companies of foot. The castle at the western ex-
ternity of the town, belonging to the family of Parson, was besieged by Sashed, lord Lucas, general of the Irish, in the war of the revolution of 1688, and relieved by general Kirk. There is a Ruine of William, duke of Cumber-
land, standing on a stone pillar of the Doric order, erected in 1747, in honour of the victory at Cuiloden. Biron is 65 miles west by south from Dublin, 6 south from Banagher on the Shannon, and near 12 from Portumna. N. lat.
N. lat. 53° 41', W. long. 7° 52'. Beaufort. — Coote's Survey of King's County.

BIRKETUM, or BIRKETUM, in Writers of the Middle and Lower Ages, a thin black cap or cover for the head, made of linen, fitted close to the head, and pointed by a pyramid, anciently worn by priests, folders, doctors, &c. Du Cange. The word birketum, sometimes written birketum and birquetum, is also applied to a cap or coif of a judge, or ferjeant at law. The birketuilo denotes the cap worn by the novices in the Jelin order, formerly of a square, now a round figure. The birret was the ordinary cover of the head in France 500 years ago. It took its denomination from birro or birrum, the coat anciently used by ecclesiastics; with which the cap was then of a piece, and made part of it; so that the whole covered, not only the head, but the shoulders. Afterwards, when they began to retrench the lower part, it still retaining the upper, it was no longer called birro or birrum, but diminutively birret, or birretum.

BIRRUS, an ancient habit worn by the Chrlilans in Africa. The word is also written byrus, supposed to be formed from pelle, on account of its red colour. Some will have the birrus an episcopal habit. Others extend it to all the clergy. Others, on fuller grounds, make it the common use of all the Christians in that quarter.

BIRKS, or BIRSH, in Geography, a river of Switzer land, which runs into the Rhine near Basle. Near this river, and not far from the town of Basle, are the hospital and burying ground of St. James, famous in the history of Switzerland for a desperate combat in 1444, between the Swiss and the dauphin of France, afterwards Lewis XI. in which Swiss valour and intrepidity were very signally displayed. Upon this occasion 1500 Swiss charged 6000 of the enemy's cavalry with such determined and well conducted valour, as to drive them back; and when the enemy received reinforcement, the Swiss renewed the assault, and forced them to repass the river Bir, and join the main body of the army. The Swiss, encouraged by this success, and also exasperated with the most spirituated indignation against the invaders of their country, rashly attempted, against the remonstrances of their officers, to force their passage over a bridge guarded by a large body of the enemy; but this gallant effort not succeeding, they threw themselves into the river, and gained the opposite shore, in the face of a battery of cannon, that was playing against them. But they were now opposed to an army of 30,000 men advantageously posted in an open plain. In these desperate circumstances they had no alternative, but to throw down their arms, or gloriously expire. They bravely preferred death; 500 took possession of a small island near the bridge, and after resolutely defending themselves to the last extremity, were cut to pieces. A like number forced their way through the ranks of the enemy, and marched towards Basle; when they were opposed by a large party of horse posted to prevent the inhabitants of the town from fleeing forth to the relief of their countrymen. Being now surrounded on all sides, they threw themselves into the hospital of St. James, and, lining the walls of the burying-ground, resisted for some time the united assaults of the French army. At length the hospital being set on fire, and the cannon having battered down the walls of the burying-ground, they no longer fought in hopes of victory; but still resolving to fell their lives as dearly as possible, they continued to defend themselves to the last gasp.

Ennas Sylvius (afterwards pope Pius II.) relates, among other actions of singular valour excited by this heroic troop, the following instance, that deserves to be recorded. Four French soldiers assaulted a single Swif, and having killed and stripped him, proceeded to insult the corpse; one of his companions, incensed at this brutal action, seized a battle-axe, rushed upon the four, slew two of them, and drove the others to flight; then flinging the dead body of his friend upon his shoulders, carried it to a place of security; and, returning to the attack, fell by the hand of the enemy. Of the whole number, only 15 escaped from the field of battle; and thefe, agreeably to the old Spartan discipline, were branded with infamy, for not having faciliied their lives in defence of their country. Among thofe who were desperately wounded and left upon the field, only 32 were found alive. The names of many of these glorious combatants were registered, and their remains upon records. The lots of the enemy was great; and they were effectively prevented from prosecuting their designs upon Switzerland, and compelled to retire in a shattered state into Alsace. Lewis himself declared that such another victory would ruin his army. This combat may be considered as forming a remarkable era in the history of the Swiss; for it gave rise to their treaty with Charles VII.; being the first alliance which they contracted with France. The Swiss still talk of this famous action with the warmest enthusiasm; and the inhabitants of Basle, form parties every year, and go to an inn built near the hospital and burying-ground, in order to commemorate, in a red wine produced from some vineyards planted on the field of battle, the heroic deeds of their countrymen, who so gloriously faciliied their lives, This wine is highly prized by the Basleans, and called "the blood of the Swift."
Birth, Natural, when the head of the fetus presenting to the uterine orifice, the labour is completely effected by the pains, without the interference of art. See Labour, Natural.

Birth, Premature, when by any accident or derangement of the health of the woman, or of the fetus, pains are excited, and the fetus is expelled before it has attained its maturity. See Abortion, and also Labour, Premature.

Birth, Preternatural, or acrot-, when, in labour, the arm, shoulder, side, breech, or any other part of the head of the fetus present to the uterine orifice. See Labour, Preternatural, and Cross birth.

Birth, Laborious, when in labour the head of the fetus presenting, yet an account of the strength of the pervers, the pains are insufficient for its expulsion, whence recourse is necessarily had to the assistance of the laver, forceps, crotchet, &c. See Laborious Birth, or Labour.

Birth, Monglous, when the fetus is deformed or mis-shaped, and has more or fewer organs than is natural. See Monster.

Births, Seven Months, partus septemfris, children born at the end of the seventh month, or 210 days from the time of conception, being now complete in all their members, and having acquired a certain degree of strength, and firmness of constitution, are not unfrequently reared or brought up.

Births, Eight Months, partus octemfris, that is, children born at the end of the eighth month, or after completing 240 or 242 days in the womb. These were suppos'd by the ancients, but erroneously, to be less vivacious, and consequently it's likely to be preferred alive, and to grow up to manhood, than seven months children. This opinion, founded on a mistaken idea of the upright position of the fetus in utero during the former months of pregnancy, and of the necessity of its making an evolution, about the end of the seventh month, to prepare it for the birth, is considered under the article Position of the fetus in Utero, which see.

For the number of births, see Marriage, under which the proportion of births to marriages, or births to burials, and of male births to females is computed. See also Mortality.

Birth, After. See Placenta.

Birth is also used for a person's descent; and it is either high or low according to the circumstances of his ancestry.

Birth, Birth, or Bithing, among Scythians, denotes the due distance observed between ships lying at an anchor, or under sail. A convenient place a-board for a melo to put their cests, leep, &c. is also called birth.—There is usually one of these in ships of war between every two guns. And a proper place to moor a ship in is called the same name, as is also the station in which a ship rides at anchor. To take a good birth, is to remove to some distance off any point, rock, or other thing which the seamen would avoid or go clear of.

Birth, Expulsion of, among the Ancients, was where a new-born infant was exposed or cast away, and left to the mercy of the first comer, who might either take and bring it up, or suffer it to perish. See Exposing of Children.

Birth, Supplication of, partus supplicio, in the Civil Law, is a crime for which accusation may be intended by those who have interest therin, and is punished with death, like the crimes falsi, or forgery.

Birth, Supplication of, partus supplicio. See Abortion.
country, and circur of Chanderee; 55 miles east of Chand-
eree.

BIRIESCA, or BIBUSCA, or BIBIESCA, a mean and wretched town of Spain, in Old Calilte; 15 miles N. E. of Burgos.

BIREUSE, a river of Siberia, which runs into the

BIRNUCH, or KIRDI, a town and district of Russia, in the government of Voronez, fated on the river

BIRZA, or BURZ, a town of Poland, in the palatinate of

BISACUTA, a coin in Pegn, current there for half a
ducat. The denomination is also given to a kind of weight used in the same country, equivalent to two Venetian pounds five ounces, or to three pounds nine ounces of the lighter weight of that city.

BISACUTA, in Middle Age Writers, an axe with two edges, or which cuts either way; or a missile weapon pointed at both ends. Wallingham represents the *fetus bifaxata* as peculiar to the Scottish nation. See *Battle-Axe*.

BISALTE, in Ancient Geography, the name of a people who inhabited a small country bordering on the Sinus Strymonius, in the northern part of Macedonia. Their chief cities were Exponia, Osa, and Calitera.

BISALTIDE, in Entomology, a species of *Papilio* (*Dun. Fyl.*), that inhabits Surinam. The wings are slightly tailed, fulvous, black at the tips; beneath, two ocular dots on the anterior pair, and three on the posterior ones. Fabricius, &c.


BISANTHE, or RADIUS, in Ancient Geography, a town of Thrace, on the confines of the Propontis, at the bottom of a kind of gulf, and at a small distance S.W. from Parinthe.

BISANT. See *Besant*.

BISLEA, a feast celebrated by the *Misipapii*, after the pruning of their vines, to obtain of the gods that they might grow again the better. The word is formed from *Evhe*, used by some for a *vine*.

BISCANO, BARTOLOMEO, in Biography, an eminent

BISCARA, or BICCARO, in Geography, a decayed city of Africa, in the kingdom of Algiers, the capital of the district of Zeb or Zeb, belonging to the province of Constantine. It is the residence of a Turkish garrison, and has a small castle, built by Haflan, the bey of Constantine, and chiefly defended by fixed pieces of ordnance, and a few unwieldy mulkets, mounted on carriages. It is a place of great antiquity, built by the Romans, and destroyed by the Arabs, who afterwards rebuilt it. It is at present as indifferently peopled as it is weakly defended; the houses being infected by swarms of scorpions, vipers, and poisonous reptiles, and the inhabitants being obliged to cefi the city and retire into the country in the summer, when these noxious animals are intolerable. The inhabitants of this place, and its adjacent district, called "Biccaris," lead a kind of wandering life, and live in tents. Few of them can be employed in agriculture and piturage from the nature of the country; but those of the superior class carry on some commerce, notwithstanding their poverty and indigence, in negroes and other feathers. The poorest of them migrate every year to the city of Algiers, and other towns of the kingdom, and are employed in the meanest and most subordinate offices, such as cleaning of streets, emptying vaults, sweeping chimneys, and carrying burdens. Having in the course of two or three years accumulated a capital from fix to ten zecins, they return home, and on account of the scarcity of coin among them are reckoned among the wealthy of the land.

In the capital, they constitute a kind of corporation, and have even a common treasury for the purpose of mutually relieving one another. They are the only class of free servants, and are highly esteemed for their fidelity. In winter, as well as in summer, they flee wrapped up in rags, on a kind of benches before the shops, and others place themselves at the gates of the different roads, for the convenience of opening them to passengers. They are not only desirous of the confidence that is reposest in them, but their disposition is placid and obliging, and their perseverance in labour is indefatigable. Those among them who are guilty of any breach of trust, are punished by their chiefs. They are employed by the Europeans as servants, and as they can speak, besides the language of the country, the "lingua Francesa," are found singularly useful. The villages which they inhabit in their own country are small, and remarkable only for their meagre and poverty. N. lat. 34° 30'. E. long. 5° 15'.

BISCARGIS, or BISCEGIS, in Ancient Geography, a town of Spain, on the right side of the river, N.W. of Dertos.

BISCAY, in Geography, a province of Spain, called, "the lordship of Biscay," is, in its most appropriate and restricted sense, bounded on the north by the Bay of Biscay, on the fourth...
south by a chain of the Pyrenees, which separates it from Old Castile and Alava, on the west by Asturia, and on the east by Guipuzcoa; and in extent its length is about 116 miles, and breadth much less, the greatest breadth being 80 miles, but very unequal. In its more general and comprehensive extent, Biscay is divided into three parts; viz. Biscay, properly so called, Guipuzcoa, and Alava; and, accordingly, it is bounded on the west by that narrow tract of Old Castile which reaches to the sea and Asturia; and to the south of Old Castile on the south-east by the ridge of the Asturian mountain branches from the Pyrenees, and by the same mountains from Navarre, and by the river Cidario from France, on the east; and washed on the north side by the Cantabrian sea, now commonly called the bay of Biscay. The country is for the most part mountainous and barren; but its valleys produce corn sufficient for the supply of the inhabitants, and a small quantity of flax. Apples are very plentiful, of which is made cider, the common beverage of the people. They have also a weak wine, called "Chacolino," which is pleasant, though it will not keep long, and is used instead of small beer. They have also citrons and oranges in great abundance. The adjacent sea supplies excellent fish, and the forests yield great quantities of timber for shipping. But the most valuable treasure of this country consists of its inexhaustible mines of excellent iron, which is transported from hence into all parts of the world. The country has been long famous for its iron-works, and especially for its manufacture of swords and knives. Some have computed the amount of its annual manufacture of iron and steel into arms, nails, iron tools, bars, &c. at 300,000 quintals. The air of this province is mild, pure, and more temperate than that of the other provinces of Spain; and the inhabitants have been distinguished by their attachment to liberty, and willingness to oppression. Their ancestors the Cantabri, were but imperfectly subdued by Augustus, and their mountains have, in every succeeding age, afforded them a retreat from the encroachments of arbitrary power. The Biscayans are said to be of Celtic or Gothic origin; and have preferred more of their ancient genius, laws, government, and language than perhaps any other people in Europe, except the Swiss, Scots Highlanders, and wild Irish, who are probably of the same origin, and whose language much resembles the Biscayan. They have always maintained a distinguished reputation for valor; and the bold soldiery and sailors of Spain have been the natives of this country. They essentially differ from the other Spaniards in the openness of their temper, and animation of their manner; and though they are cholerics even to a proverb, and not delitute of pride and vanity, they are obliging, polite, and friendly. Their females are beautiful, lively, and cheerful. Their dress is neat and pannorial; their hair falling down their backs in long plaits, with a handkerchief twisted round it. The most singular part of the dress of the men is the covering of their legs, round which they wrap a piece of coarse grey or woollen cloth, fastening it with many folds of tape. The three provinces of Biscay, Alava, and Guipuzcoa, have been the asylum of liberty and industry, and to these causes their prosperity may be ascribed. When the king, who is styled merely "lord of Biscay," wants a supply either of men or money, he announces his will to the province; which furnishes its contingency of both; the latter being levied upon the different cities and communities, according to a certain regilier, so that in effect Biscay may be said to tax itself. In this province are no bishops. Its privileges are extensive, it has watched over with a jealous eye. The language of Biscay is accounted aboriginal; it is said to be the Cantabrian, or ancient language of Spain, which was a branch of the Celtic, and first gave way to the Roman, of which it is so totally different from the Gallican, that the peasants scarcely understand a single word of Spanish. The capital of Biscay is Bilbao, which lies. Its other chief towns are Orduna, Durango, Fontarabia, St. Sebastian, Tolosa, and Vitoria.

BISCAY, Bay of, that part of the Atlantic which lies north of the province of Biscay, between the projecting coasts of France and Spain, and extends from Cape Ortegal to Bret. It advances farthest to the land between Bayonne and St. Sebastian; and it likewise advances considerably at Rochelle and Rochefort.—Also, a large bay on the coast of Newfoundland, between Cape Race and Cape Pine. It lies in the N.E. corner of Trepassy bay, on the S.E. part of the island. N. lat. 46° 50'. W. long 53° 6'.

BISCAY, New, a province of Mexico in North America in the audience of Gaudalajara, bounded on the north by New Mexico, on the east by New Leon and the river Bravo, on the south by Chihuahua and Coahuila, and on the west by Navarre, Sonora, and Haqui, on the borders of the Gulf of California. It is computed to be about 300 miles from east to west, and 560 from north to south. The country is mountainous, but well watered, fruitful, and moderately temperate, rich in corn, cattle, and other productions; and also in mines of silver and lead. The original inhabitants have four large towns in the morasses, which are difficult of access, and by means of which they avoid total subjection; and therefore the Spaniards have built three small fortified and well inhabited towns for the defence of their silver mines. The capital is Durango. This province lies between the latitudes of 27° 33' and 33° N. and between 105° and 108° W. long.

BISCEGLIA, a town of Naples, in the province of Bari, having the see of a bishop, suffragan of Trani; it is pleasantly situated on an eminence in the midst of orchards and villas. The walls are of stone and very lofty; and it has hundreds of subterraneous referves and cellars, cut in the solid rock, and arched over with stones and floucco, in order to collect and preserve the rain-water, which is the only port with which they are supplied in a district, to totally destitute of springs. Biseglia is 4 miles distant from Trani.

BISCHBURG, or BISCHOFSHOFN, a town of Prussia, in the county of Ermeland, 54 miles south of Konigberg.

BISCHEIM, a town of Germany, in the circle of the Upper Rhine, and county of Litchenborn, on a small river which runs into the Rhine, 8 miles N.E. of Strafburg.

BISOFFLACK, or SCHAFOF, a town of Germany, in the duchy of Carniola, 27 miles N.N.E. of Trieste.

BISOFFSHEIM, a town of Germany, which lies on the Tauber, in the circle of Franconia, but belonging to the electorate of Metz, 63 miles S. E. of Metz.

BISOFFSTORF, a town of Germany, in the duchy of Slesia, 13 miles E.N.E. of Gratz.

BISOFFSHEIM, a town of Germany, in the circle of Franconia, and bishopric of Wurzburg, lying on the Kiss, 32 miles north of Wurzburg.—Also, a town of Germany, in the circle of the Upper Rhine, and county of Hanau-Munzenberg, 3 miles W.N.W. of Hanau.

BISOFFSTEIN, or BESTIN, a town of Prussia, in the county of Ermeland, 42 miles south of Konigberg.

BISOFSWERDA, a town of Germany, in the circle of Upper Saxony, and margraviate of Meissen, seated on
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an island in the river Wesenitz, the principal commerce of which is in white thread; it has two churches; 20 miles east of Dresden.

BISCHOFSWERDER, a town of Prussia, in the province of Oberland, 80 miles S.W., of Königsberg.

BISCHOFZELL, a town of Switzerland, in the Thur-gaw, seated at the confluence of the rivers Sitter and Thur; 11 miles south of Contance. This town has a castle, in which resides the bishop of the bishop of Contance, who exercises jurisdiction over the Catholics, and receives a moiety of the fines. N. lat. 47° 25'. E. long. 9° 15'.

BISCHOP, or Bishop, John de, in Biography, an excellent artist, was born at the Hague in 1642, and is much commended as a painter; and his drawings, in which he imitated with great exactness the style of the best masters, are much esteemed and sought after by the curious. But he is most generally known as an engraver. His works are chiefly etchings, harmonized with the graver; and though slight, yet free, spirited, and pleasing. He gives a richness to the colour, and a roundness to the figures, far beyond what is usually done with the point, so little affected by the graver. His figures are generally well drawn, drawn in a mannered than a correct style; but his extremities are not always well marked, nor his heads equally expressive and beautiful. His excellence was owing chiefly to his own genius, as he never studied under any master. He worked chiefly at Amsterdam, and died in 1686. The following prints are worthy of notice: viz. "Christ and the Samaritan woman" from Aumbale Caracci; "Joseph distributing corn to the Egyptians," from B. Breenberge; "the Martyrdom of St. Lawrence," from the same. Strutt.

Bishop, or Bishop, Cornelius, a painter of portrait and history, was born at Antwerp, fay fomie, or according to others, at Dort, in 1630; and was the disciple of Ferdinand Bol, whose pencil, tint of colouring, style, and manner, he reformed, and to whom he has been taught by some competent judges not to be inferior. He died in 1674. A painting by this master, consisting of a few figures by candle-light was so much admired by Louis XIV., that he purchased it at a high price, and placed it in the royal collection. The king of Denmark also admitted his works among those of the best masters. It is observed, however, that they are not worthy of that high commendation which is bestowed upon them by the Flemish writers. Pilkington.

BISCHWILER, in Geography, a town of France, in the department of the Lower Rhine, and chief place of a canton in the district of Strasbourg, seated on the Motte near the Rhine, and defended by a castle, flanked with towers, and guarded by ditches; 10 miles north of Strasbourg. The town contains 3449 inhabitants, and the canton 13,668. Its territorial extent comprehends 265 kilometres, and 21 communes.

BISCH, in Ichthyology, one of the Synonymous names among old writers for the pipe-fish, tobacco-pipe-fish, needle-fish, or trumpet-fish; and Syngnathus acus of Linneus and Gmelin.

BISCUVAARE, in Geography, a town of Norway; 48 miles east of Bergen.

BISCROMA, Ital. for a demifemiquaver, in Music. If single, it has three hooks; if two or more, they have three ties.

BISCuit. See Bisket.

Bisquit, in Pottery, a name given to porcelain, when baked and not glazed; and this is more or less beautiful, according to the nature of its composition. See Porcelain and Pottery.

BISCUTA, in Entomology, a species of Formica, with a bidentated thorax; and a double petiole scale. Inhabitats Cayenne. Fabricius Spec. inf.

BISCUTELLA, formed of bis, and the diminutive of fustum, the fruit resembling a double shield, in Botany, buckler-mustard, or bardaff Mitridate mustard. Linn. gen. 808. Reich. 872. Schreb. 1054. Juff. 239. Garti. t. 141. Thalpidium. Tournef. 101. Chas and order, Tetradynamia Siliculofa. Nat. Ord. Siliculore, cruciformes, os terfieres. Gen. Char. Col. perianth four-leaved; leaves ovate, acuminate, gibbous at the base, coloured, deciduous. Cor. four-petalled, cruciform; petals oblong, obtuse, spreading. Stem filaments, the length of the tube of the corolla; two opposite shorter; anthers simple. Pip. germ compressed, orbicular, emarginate; style fringed, permanent, stigma obtuse. Per. stile erect, compressed, flat, fimbriated, with roundish lobes, two-seeded; partition lanceolate, ending in a rigid style; cells two-valved, affixed to the partition on its straight margin. Seeds solitary, roundish, compressed, in the middle of the cell. Obj. The two outer leaves of the calyx in some species have a tubular-couveilisaceous prominent base.


Species, 1. B. auriculata, ear-padded buckler-mustard. Thalpif. Baul. pin. 107. n. 3. prod. 49. n. 8. Ral. hift. 837. n. 4. Lecoumian montium fl. pedato. Col. echpr. 2. 52. 60. t. 61. Jondraba Barr. le. 230. "Calyxes gibbous on each side with the nectary, figues running into the style." In a wild state this plant rises about a foot in height; but in gardens nearly two feet, dividing into several branches; the flowers are produced at the ends of the branches, in loose panicles, and are of a pale yellow colour. The calyx is very large, and the calyx bagged out very much at the bottom. A native of the south of France and Italy. Cultivated in Kew garden by Mr. J. Sutherland in 1853, and flowering in June and July. 2. B. apala, spear-leaved buckler-mustard. B. didyma. Linn. spec. 911. Hort. Chiff. 329. 2. Upf. 185. Thalpif. Ral. hift. 837. n. 5. Clypeatum. Chiff. Hift. 2. 135. Jondraba. Col. echpr. 1. 283. t. 285. f. 1. "Silicyle fucruros; leaves lanceolate, fefile, ferrate." A native of Italy. Cultivated in 1759, by Mr. Miller. Flowering in June and July. 3. B. lyra. Thalpif. bicifatum &c. Bocc. fic. 45. t. 23. Ral. hift. 837. n. 6. "Silicyle fucruros; leaves lyrate." A native of Spain and Sicily. 4. B. carosipolia. "Silicyle fucruros; leaves toothed, rough with hairs." Allioni thinks this a variety of the second, proceeding from a drynes of foil; for it is found in very dry barren places in Spain, Italy, and Germany. Gounat is of opinion that this and the second, third, and fourth are one species. 5. B. nigrata, smooth buckler-mustard. B. didyma. Scop. Carn. n. 804. Clypeola didyma. Grantz. Auffr. 20. Lecoumian. Col. echpr. 1. 283. t. 285. f. 2. Ral. hift. 836. n. 2. "Silicyle fucruros; leaves lanceolate, ferrate." The whole plant is acid; the root perennial, according to Jacquin, but, according to others, annual. A native of Italy and Auffria. Found at very different heights in the mountains, with variation of stature, from half a foot to a foot and half. Flowering in lower situations in April and May; in higher ones in July and August; in our gardens in June and July. Introduced here in 1777 by M. Thoin. 6. B. sempervirens, shrubby buckler-mustard.
mustard. Thlspfi bisegetlum. &c. Bar. lc. t. 841. 
Bocc. muf. 1971. t. 112. " Silices somewhat scabrous; 
leaves lanceolate tomentofoe. " A native of Spain. Introduced 
into Kew garden in 1784, by Msfrs. Lee and Ken-
nedy.

Propagation and Culture. These are all annual plants, ex-
cept the last, and perish soon after they have perfected 
their seeds. They should be sown in spring or autumn, upon 
the border of light earth, in an open situation, where they are to 
remain. These sown in autumn will come up about three 
weeks, live through the winter, and flower early in the fol-
lowing summer, and thus good seeds may be always ob-
tained; but those that are sown in the spring decay in bad 
seasoons before the seeds are ripe. The autumnal plants 
flower in June, and the spring plants in July, and their seeds 
ripen in about six weeks, and if they are permitted to setter, 
young plants will be produced without any care. They re-
quire only to be kept free from weeds, and to be thinned 
where they are too close, leaving them eight or nine inches 
upon. They have no great beauty to recommend them.

Martyn’s Miller.

BISDORF, in Geography, a town of Germany, in the 
circle of Upper Saxony, and principality of Anhalt-Cotten, 
3 miles north of Cotten.

Bisection. See Bisection.

Biselliarii, or Biselliari, in Antiquity, those 
who enjoyed the honour or privilege of the bifellium.

The word occurs in ancient inscriptions. CN. PLAE-
TORIO VIVIRO AUGUSTELLI BISELIARI. Gruter, Infer. 
p. 1099.

The honor bifellii appears to have been much the same with 
what in France is called droit de fanneul; and the bisellarii 
those who in public assemblies enjoy this distinction of 
the fanneul, while other persons are obliged to flam, or sit 
on benches, rools, or ordinary chairs. Scaliger, in his 
index to Gruter, millook the bisellari for artificers who made 
these seats.

BISELLUM, from bis and fella, a chair, a kind of seat 
or chair, larger and richer than ordinary, big enough to hold 
two persons, wherein to sit in courts, theatres, and other 
public assembleys.

Biseptemguttata, in Entomology, a species of 
Coccinella, of a pale yellow colour, with fourteen white 

Bis-Ergot, in Orniology, a name given by Buffon 
to the Gmelianus tetra bicalcarata.

Biserrula, so named from the fruit, “ biserrato 
Clais and order, Diaselphia. Decandria. Nat. Ord. Papil-
lianae or leguminos. Gen. Carl. Cal. persiana, 
tubular, erect, semiquadrifid; teeth tubulate, equal, 
the two upper ones more remote. Gr. papilionaceous, 
banner larger, reflected on the sides, ascensiong, roundish; 
wings ovate-oblong, free, shorter than the banner; keel the 
length of the wings, oblong, ascensiong. Stam. filaments 
diadelphous (simple and single-cleft), ascensiong at their tips, 
inclined within the keel; antehes small. Pyl, germ, oblong, 
comprted; style tubulate, ascensiong; stigma long. Per-
legume large, linear, flat, two-celled; partition contrary 
to the valves. Seeds very many, kidney-form, comprpessed.

Eff. Carol. legume two-celled, flat; partition contrary.

Species. 1. B. Pedicinus, balfard hatchet-vetch. Atra-
galus. Mor. hist. 2. f. 21. g. 6. Securidaca. 
f. 6. Park. Theatr. 1089. f. 5. Rauh hift. 319. n. 16. 
Lunaria radiata Robinson. Bauh. hift. 2. 348. f. 2. An annual 
plant growing naturally in Italy, Sicily, Spain, and the 
loth of France. Cultivated in Kew garden in 1649.

Propagation and Culture. It is propagated by seeds, sown 
in this country in autumn, on a bed of light earth, where 
the plants will come up in about three weeks, and live 
well in the open air. They should either be sown where 
they are to remain, or transplanted when very young. After 
the plants are come up, they will only require to be kept 
free from weeds, and to be thinned to the distance of a foot 
from one another. They flower in June, and the seeds 
ripen in September. They may be also sown in spring, and 
treated in the same manner. Two or three of these plants 
may be cultivated for the lake of variety, but they have not 
much beauty. Martin’s Miller.

Biserte, in Geography, a town of Tunis, seated on a 
small river which runs into the Upha, in the government of 
Perm. So miles S. E. of Perm.

Biserta, or Bizerta, a sea-port town of Africa, in 
the kingdom of Tunis, pleasantly situated upon a canal 
which wind a extensive lake and the sea, at the bottom of a 
large gulf, about 8 miles to the southward of Cape Blanco. 
N. lat. 35° 3'. E. long. 10° 15'. It is about a mile in cir-
cuit, defended by several castles and batteries, the principal 
of which are towards the east. Bizerta is a corruption of 
the " Hippo-Diarrhytus," or " Zarius" of the ancients; 
though the present inhabitants derive its name from their 
own language, and suppose it to be the same with " Ben-
ferth," i.e. the offspring of a canal or rivulet. The lake 
upon which Bizerta is seated has an open communication 
with the sea; and, according to an observation of the 
younger Pliny (Ep. xxxiii. l. 9.), is either continually 
receiving a fresh current from the sea, or else discharging 
one into it; so that the water loy the lake by exhalations 
is foon supplied by the sea, which in hot seasons runs into it 
with a very brill current, in order to maintain the equili-
trum, in the same manner as is observed between the 
Atlantic ocean and the Mediterranean. The millets of this 
lake are reckoned the best in Barbary. Great quantities of 
their rous are dried and made into " Botargo," and sent 
from hence to the Levant, where they are esteemed a very 
dainty. The channel of communication between the lake 
and the sea is the port of " Hippo-Diarrhytus," which still 
receives small vessels; though it must have been formerly 
the salt as well as the most beautiful haven of this part of 
Africa. There are still remaining the traces of a large pier, 
that was carried out into the sea, to break off the N. E. 
winds; the want of which, together with the disinfestation 
of the Turks to repair it, will in a short time make the 
harbour useless, which, in any other country, would be in-
cilimable. Scylax calls it only " Hippo," and Diodorus 
Scilicus gives it the name of " Hippoiana."

By the di-
rection of Scipio’s marches it seems to have been the rich 
aqueduct, now called Scipion, mentioned by Livy (x. xxix. 
289.) The Turks encouraged trade and industry. It would 
become an appellation, because, besides fish and fruit of all kinds, it 
abounds with corn, pulpe, oil, cotton, and a variety of other 
valuable productions. The gulph of Bizerta, the " Sinus 
Hippenceari," of the ancients, is a beautiful sandy inlet, 
nearly four leagues in breadth. As its bottom is low, it 
affords a delightful prospect through a variety of groves 
and plantations of olive trees, to a great distance into the 
country; but to the eastward the view is bounded by a 
high rocky shore, extending as far as cape Zibech. Bizerta 
was formerly a large town, and is said to have contained 
6000 houses; whereas now the town, and its dependent 
villages, scarcely contain the same number of inhabitants.

It has, nevertheless, two capacious prisons for slaves, a large 
3 P.'
Those who are advocates for the divine right of episcopacy, and who trace its institution to the times of the apostles, maintain that, in the earliest age of the Christian church, there were three different orders of ministers appointed by the apostles for the discharge of the public offices of religion: viz. bishops, priests, or prebendaries, and deacons. In proof of this point they refer us to the testimony of ancient ecclesiastical writers, whence they deduce, as they conceive, the most satisfactory evidence, that bishops were instituted by the apostles, and that they continued afterwards as a distinct order from that of priests. To this purpose they allege, that Irenæus, a father of the second century, says (l. iii. c. 3.), "We are able to enumerate those who by the apostles were made bishops in the several churches, and their successors, to this time." He adds, "Polycarp was not only instructed by the apostles, and acquainted with many of those who saw our Lord, but was also by the apostles made bishop of the church of Smyrna in Asia." Tertullian also, a writer of the same century (De Praefer. adv. Hetzel. p. 78.), challenges certain heretics to "exhibit the order of their bishops, following each other from the beginning, that the first bishop had for his author and predecessor some one of the apostles, or of those apostolical men who persevered with the apostles; for in this manner apostolical churches assert their rights: thus, the church of Smyrna has Polycarp, who was placed there by John; the church of Rome has Clement, who was ordained by Peter; and other churches have other persons, who, by being placed in the bishoprics by the apostles, transmitted the apostolical see." Cyprian also says (Ep. 69. ad Flor.), "that the bishop, who is one and presides over the church, through the proud presumption of certain persons, is defined; and thus the man, who is honoured by the sanction of God, is judged unworthy by men." In an epistle addressed to Ignatius (Ad Antioc. c. 7.), but probably spurious, though very ancient, it is asserted, that Evodius was consecrated a bishop by the apostles. And Chrysostom says (Hom. 42. in Ignat.), "that Ignatius converted familiarly with the apostles, and was perfectly acquainted with their doctrine, and had the hands of the apostles laid upon him." In a fragment of an epistle of Dionysius bishop of Corinth in the second century, preferred by Eusebius, (H. E. l. 4. c. 23.), it is said, that Dionysius the Areopagite, who was converted by St. Paul, was appointed the first bishop of Athens. Eusebius and Socrates have given us the catalogues of the bishops of many cities, from the times of the apostles; and Epiphanius (lib. 2. Haer. 66.) has left us a catalogue of the bishops of Jerusalem, from St. James the apostle to Hilary, who was bishop in his time. It is further alleged, that bishops, priests, and deacons, are mentioned together as three separate orders. Ignatius, in his Epistle to the Magnesians (§ 2.), mentions Damas as bishop of Magnesia. Basilius and Apollonius as prebendaries, and Sotian as deacon, in the same church; and in his epistle to the Philadelphians (§ 7.), he says, "Attend to the bishop, to the presbyter, and to the deacon;" and in his epistle to the Trallians (§ 2.), he says, "Be ye subject to the bishop, as to Jesus Christ; to the presbyters, as the apostles of Jesus Christ; and to the deacons, as to ministers of the mysteries of Jesus Christ." He then adds (§ 5.), "whether there be no elect church, no congregation of holy men." The authority of Ignatius, who lived in the beginning of the second century, is considered as decisive. Clement of Alexandria, in the subsequence part of the same century, speaks of the three progressive orders of deacons, priests, and bishops (Strom. l. 6.); and there are several early instances of bishops, who had been prebendaries and deacons in the same church. Irenæus was first prebendar, then bishop of...
bishop of Lyons; Dionysius first prebyter, then bishop of Rome; and Eleutherius, first deacon, then bishop of Rome; and all these three lived in the second century. "When your captains," says Tertullian (De Fuga in Perfo.), "that is to say, the deacons, prebyster, and bishops fly, who shall teach the laity that they must be constant?" And upon another occasion, speaking of baptism, he says (De Baptism. c. 17.), "the high-priest, who is the bishop, has the chief right of administering it, then the prebyster and deacons, but not without the authority of the bishop." Origin, in many places, speaks of bishops as superior to prebyster and deacons; and many authors compare the bishops, called by the Greeks archontes, and by the Latin fathers "summi facerdotes," and "principes facerdotum," prebyster and deacons of the Christian church to the high-priest, priests, and Levites under the Jewish dispensation; and hence prebyster afterwards obtained the name of priests. Clement, a disciple of the apostles, says (Ep. ad Cor. § 40.), "To the high-priest are given his proper duties; to the prebyster their proper place is assigned; and to the Levites their proper services are appointed;" in which passage this ancient father is speaking of the bishop, prebyster, and deacons of the Christian church; and Tertullian, in the passage just cited, called the bishop the high-priest. Jerome, though he is sometimes represented as unfavourable to the cause of episcopacy, is still more expressive, and denominates (Epist. ad Evag.) the order of bishops, prebyster, and deacons, an apostolical tradition. "To what purpose," says Optatus (ib. i.), "should I mention deacons, who are in the third, and prebyster who are in the second degree of priesthood, when the very heads and princes of all, even certain of the bishops themselves, were content to redeem life with the lofs of heaven?" In the tenth canoe of the council of Sardis, held A.D. 347, it is enjoined that a person should not be rashly and lightly appointed a bishop, a prebyster, or a deacon. It is further proceeded, that episcopal power was not called in question in the three first centuries; but towards the end of the fourth century, Aecius, an Arian, wrote against it, and maintained that there ought to be no order in the church superior to that of prebyster. Nevertheless, it is alleged that no advocate is found for his opinion in the centuries immediately following; and that even Aecius allowed there had been bishops in the Christian church from the earliest period. From these several testimonies it is inferred, that bishops were appointed by the apostles; that there were three distinct orders of ministers, viz. bishops, prebyster, and deacons, in the primitive church; and that there has been a regular succession of bishops from the apostolic age to the present time; and the enemies of episcopacy are challenged to produce evidence of the existence of a single ancient independent church fairly established, which was not governed by a bishop. While the apostles lived, the churches, it is said, were subject to their authority and government; and to this circumstance it is owing that little is said concerning the distinction and power of ministers, in the Acts and Epistles; but when the gospel was spread into distant parts, and the apostles were under a necessity of discharging their visits, or rendering them less frequent, they found it expedient for the better government of the Christians, and in order to put a stop to their schisms and contentions, which began to make their appearance both among the prebyster and their congregations, to place the supreme authority in one person, who, from the superintending care which he was to execute, was called Episcopus, a bishop; and this word, which was perhaps at first applied indiscriminately to all who had any spiritual office in the church, was now conferred on him who was its chief governor.

The bishops were at first appointed by the apostles, and afterwards chosen by the prebyster and the congregations at large; and in both cases they were generally taken from the prebyster of the respective churches, except in those instances in which they were the immediate companions of the apostles. Accordingly Jerome, (De Ecclest. Script.) where he is speaking, as it is supposed, of the apostolical times in which James was made Bishop of Jerusalem by the apostles; Timothy bishop of Ephesos, and Titus bishop of Crete, by St. Paul; and Polycarp bishop of Smyrna, by St. John; observes that "churches were governed by the common advice of prebyster; but when every one began to reckon those whom himself had baptized, his own, and not Chrift's, it was decreed in the whole world, that one, chosen out of the prebyster, should be placed over the reft, to whom all care of the church should belong, and to the leads of schism should be removed." When St. Paul was at Mileitus, A.D. 58, and convened the elders of the church at Ephesos, no mention is made of the bishop; and in his address to them he calls them "bishops or overseers of the flock," hence it is inferred, that the word bishop was not then the appropriated name of the person who held the first office in the church, or rather, that there was as yet no such person in the church at Ephesos. But in the year 64. St. Paul found it necessary to place Timothy in that situation, with power to prevent the preaching of any unfound doctrine, and to ordain and exercise authority over prebyster, that is, with episcopal power; and in his epistle, written to him in that year, he speaks expressly of the "office of a bishop," and gives a detailed account of the qualifications of a bishop. See 1 Tim. i. 3, v. 19, 22. 1 Tim. iii. 1. We have also a similar account in the epistle to Titus, written in the same year; and he was invested with the further power of rejecting heretics from the churches over which he presided. See Titus iii. 10. Hence it is concluded, that in the year 64 there was such an office as that of bishop. St. Paul, addressing his epistle to the Philippians, used the word bishops in the plural number, and does not mention prebyster; whence it is thought by Chrysostom, Theodoret, Jerome, and indeed by almost all commentators, that by bishops we are here to understand prebyster; and it is therefore presumed, that there was then no bishop, in the strict sense of the appellation, at Philippi. A.D. 62. From a comparison of these different passages it has been conjectured, that Paul began to establish episcopacy immediately after his release from his first confinement at Rome. However, it is acknowledge, that at this early period there was not a bishop in every church. Nevertheless, it is inferred from St. Paul's epistles, that he gave the ministers of the churches which he founded, a certain power over their respective congregations, and as St. Paul and the twelve apostles acted equally under the influence of the Holy Ghost, it is presumed that they invested all, whom they appointed to preach the gospel, with a similar degree of power; and thus church authority is derived from the apostles themselves. This power, thus originally given, was not limited to the primitive ages; it is supposed to have been transmitted to those "faithful men who shall be able to teach others after" (2 Tim. ii. 2), and to remain in the church under different modifications, as essentially necessary for the purposes specified by the apostle, Ephes. iv. 13, 14.

At first the jurisdiction of a bishop was confined to the walls of his own city; but afterwards, when the gospel made its way into towns and villages, the concours of the Christians that inhabited them, would naturally fall under the cognizance and direction of the bishops of the neighbouring cities; and thus dioceses would be gradually formed. See Diocesis. In prose of time, it is supposed, the affairs of the church would require the consultation and co-opc-
co-operation of different bishops; and therefore, as before, one of the presbyters of a city was raised to be a bishop, and  
we have authority over other presbyters, so one of the bishops  
of a province was selected and invested with certain authority  
over other bishops, and he was called an archbishop; and  
in the appointment of archbishops, the civil importance of the  
the city seems to have been regarded, for we find the met-  
ropolitan bishops were generally archbishops, and hence  
archbishops were called metropolitan. Archbishops, it has  
been said, were first appointed in the second century; and  
they had power to assemble the bishops within their respec-  
tive provinces, to regulate the election of bishops, to confer  
them, to hear appeals from their decisions; and to take  
cognizance of their general conduct. See Archbishop  
and Patriarch.

It is sometimes urged, that bishops, priests, and deacons,  
are now, in their office and authority, very different from  
what they formerly were; but this, say the advocates of  
episcopacy, is no more than a necessary consequence of a  
change of times and circumstances. They do not contend  
that the bishops, priests, and deacons of England are at pre-  
cent precisely the same that bishops, presbyters, and deacons,  
were in Asia Minor, 1700 years ago. They maintain, how-  
ever, that there have been always bishops, priests, and dea-  
cons in the Christian church, since the days of the apostles,  
with different powers and functions in different countries and  
at different periods; but the general principles and duties,  
which have respectively characterized these clerical orders,  
have been essentially the same at all times and in all places;  
and the variations which they have undergone, have only  
been such as have ever belonged to all persons in public situ-  
ations, whether civil or ecclesiastical, and which are, indeed,  
infenparable from every thing in which mankind are con-  
cerned in this transitory and fluctuating world. A learned  
prelate, who flatters himself that, by the testimonies and  
arguments, of which we have above given a general account,  
he has proved episcopacy to be an apostolical institution,  
readily acknowledges, however, that there is no precept in  
the New Testament, which commands that every church  
should be governed by bishops. As it has not pleased the  
Almighty to prescribe any particular form of civil govern-  
ment for the security of temporal comforts to his rational  
creatures; so neither has he prescribed any particular form  
of ecclesiastical policy as absolutely necessary to the attain-  
ment of eternal happiness. And though the Scriptures con-  
tain no directions concerning the establishment of a power by  
which ministers are to be admitted to their sacred office, yet  
he conceives, that from the apostles, episcopal ordination  
has been regularly conveyed to us; and the legislature of  
this kingdom has recognized and confirmed this power to  
bishops. See Ordination. Elements of Christian Theology,  

Persons, on the other hand, who do not admit episcopacy  
to be of apostolical and divine institution, contend, that  
the terms πρεσβυτέρος and πρεσβυτέρος, that is, bishop and  
presbyter, are used promiscuously in the New Testament, to  
which they think it necessary to appeal, as to the sole au-  
thoritative rule of faith and practice, and that they de-  
note the same, and not a distinct order or office in the Christian  
cirrh. To this purpose they allege the passage already  
cited, Acts xx. 17, 28, in which the same persons are de-  
nominated presbyters and bishops. Thus also the name, of-  

go, and work of a bishop and presbyter appear to be the  

But nor is it of any con-  
sequence whether we call their pastors bishops with the apol-  

e, or preachers with Polycarp, as both speak of two or-  
ders only among them. In the whole book of Acts, the  

tated pastors of the churches are denominated presbyters;  

collection for the poor Christians is sent to the preby-  

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tated pastors of the churches are denominated pre-  

BISHOP.

The word πρεσβυτέρος, it is said, was properly the  
name of office, and πρεσβυτέρος was a title of respect, bor-  
rowed from the Jewish customs, which was analogous to that  
of other nations, of calling not only the members of the  
Sanhedrim πρεσβυτέρος, elders or seniors, but also the mem-  
ers of the city council. It has been moreover affirmed,  
that a single passage from the apologetic writings has yet  
been produced, in which it appears from the context, that  
the two terms πρεσβυτέρος and πρεσβυτέρος mean different offices;  
and that there is the strongest positive evidence, which  
the nature of the thing can admit, that in these writings the  
two terms uniformly mean the same office. The Apostle  
Paul, in the directions he gave to Timothy, about the pro-  
per supply of churches with suitable ministers, takes parti-  
cular notice, merely, of two orders, one called bishops, and  
the other deacons; and hence, it is argued, that if by bi-  

s upstairs is the author of whom we speak, it was di-  

tinct from the num-  
bers of those who, in the book of Acts, are  
called πρεσβύτερος, presbyters, or ordinary teachers. Since it  
must therefore be admitted, that in the New Testament,  
and also in this work of Clement, the words πρεσβυτέρος and  
πρεσβυτέρος are not occasionally, but uniformly, used syno-  
ymously, the discovery that there was not any distinctive  
appellation for such an office as that now called bishop, is  
adduced as affording a strong presumption, that it did not  
exist. Another testimony alleged to the same purpose is  

§
that of Polycarp, who takes notice only of two orders of ministers in the church; for in ch. v. of his epistle to the Philippians, he enjoins the people to be subject to their prebishops and deacons, as to God and Christ; hence it is inferred, that if this ancient father had known of any higher order in the church, such as was that of a bishop in less than 350 years after his time, he would have been the principal, if not the only person, to whom his subjection would have been enjoined by a Christian writer. It is observed further, that though he specifies the duties and qualifications of deacons in ch. v. and those of prebishops in ch. vi. and through the whole of the epistle, those of the people, he no where mentions what is proper in the character and conduct of a bishop. Upon the whole, it seems evident that Polycarp knew of no Christian minister superior to the prebishops.

It has been alleged by the advocates of episcopacy, that the bishops are the proper successors of the apostles, not in the general character of teachers, but in their special functions as apostles (see Stillingfleet's works, vol. i. p. 371.); whilst the prebishops and deacons were merely the successors of those who were, in the beginning, ordained by the apostles. But that the apostles could not have any proper successors has been evinced by the following considerations. The indisputable requisite in the character of an apostle, which was that of having seen Jesus Christ after his resurrection, demonstrates that their office could be but temporary. Besides, they were distinguished by prerogatives, which did not depend on any after them; of this kind were their having received their mission immediately from Christ, and not by any human ordination or appointment; the power of conferring miraculous gifts by imposition of hands; and the knowledge which they had by inspiration of the whole doctrine of Christ. Moreover, the object of their mission was altogether of a different kind from that of any ordinary pastor; and this was to propagate the gospel throughout the world both among Jews and Pagans, and not to take charge of any particular flock. Further, as a full proof that the matter was thus universally understood, both in their own age, and in the times immediately succeeding, no one, on the death of an apostle, was ever substituted in his room; insomuch that when that faceless college was extinct, the title became extinct with it. It is alike true also of the evangelists, that their office was temporary, and that their charge extended to the whole church; and their titles, like that of an apostle, were only enjoyed by those who first enjoyed it. Such were Philip, Timothy, Titus, and probably Mark, and Luke. As to the dates or postscripts subjoined to the epistles in the common bibles, and distinguishing Timothy and Titus by the appellation of bishops, it is now universally agreed among the learned, that they are of no authority. They are not found in some of our best and most ancient MSS.; and they are generally allowed to be the spurious additions of some eastern bishop or monk, at least 500 years after Christ. It is certain, however, that in the three first centuries, neither Timothy nor Titus is styled bishop by any writer. In the island of Crete, of which Titus is said to have been ordained the first bishop, there were no fewer, according to the earliest accounts and catalogues extant, than 11 bishops. Indeed, so little can the infractions given by Paul to Timothy and Titus be made to quadrate with any ordinary ministry that ever obtained in the church, that the learned Dr. Whitby (see his Preface to the epistle to Titus) concludes, that their was extraordinary as well as temporary, and that they were not succeeded in it by any that came after them. Hence it is inferred, that all the arguments alleged in favour of the distinction between bishops and prebishops in the early age of the church, by Epiphanius and others, from some passages in the epistles to Timothy and Titus, proceed upon the mistaken notion, that they were properly bishops in the modern acceptation of the term; a notion utterly unknown to that Christian antiquity, which denies the name of primitive, and also incompatible with the authentic accounts we have concerning these extraordinary ministers, who were not made bishops till about 500 years after their death.

Some have deduced an argument in favour of the apostolical antiquity of episcopacy, from the epistles to the seven churches of Asia mentioned in the Apocalypse, which are addressed to the angels of those churches separately in the singular number. From the first chapter of that book it appears, that each epistle is intended for the whole church or congregation mentioned in the direction or superscription; and yet one person, called the angel of that church, is addressed in the name of the whole. Hence some have inferred, that the person denounced as angel, was an order differing from that of other ministers, and superior to it; whilst others have considered the appellation as descriptive of the whole collective body. An intermediate opinion, advanced by some critics, is more probable. This supposes the necessity, for the sake of order, that in their controversies or congregations one should preside, both in the offices of religion, and in the consultations for the common good; and that this presiding, or chairman, is here addressed under the name of angel. This interpretation affords us also the most plausible account of the origin of the more considerable distinction, which afterwards obtained between bishop and preb. It was the distinction of one pastor in every church, marked by the apostle John, though not made by any who had written before him, which led Tertullian, whole publication first appeared about a century after the epistles, to consider him as the institutor of episcopacy. By those who deny the superiority of bishops to prebishops in the first age of the church, it is alleged, that the first reformers and founders of the church of England, as well as many of their most learned and eminent doctors, have not pretended this distinction to be of divine, but merely of human invention; not grounded upon scripture, but only upon the custom or ordinances of this realm. To this purpose, the declaration made of the function, &c. of bishops and priests, and signed by more than 37 civilians and divines, among whom were 13 bishops, Cranmer and others, affirms, that in the New Testament there is no mention made of any degrees or distinctions in orders, but only of deacons or ministers, and of priests or bishops. (See D. Burnet's Hist. Ref. vol. i. Append. p. 321.) Besides, the book, entitled "The Institution of a Christian Man," subscribed by the clergy in convocation, and confirmed by parliament, owns bishops and prebishops to be the same. Moreover, that the main ground of settling episcopal government in this nation, was not any pretence of divine right, but the convenience of that form of church government to the late and condition of the church at the time of the reformation, the learned Stillingfleet affirms (Iren. c. 8. Works, vol. ii. p. 356, &c.), and proves it to be the sentiment of archbishop Cranmer and of other reformers, in the reigns of Edward VI. and of queen Elizabeth, such as archbishop Whitgift, bishop Bridges,loe, Hooker, Sutcliffe, Hale, Challonerworth, &c. It was also the opinion of archbishop Usher, that bishop and preb. differed only in degree and not in order, and that in places where bishops could not be procured, the ordination of prebishops was valid. Subse- Order. "As for the notion of different offices of bishop and preb., says bishop Burnet, in his "Vindication of the church of Scotland," p. 336. "I confess it is not to clear
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clear to me, and therefore since I look upon the sacramental actions as the highest of sacred performances, I cannot but acknowledge those who are empowered for them must be of the highest office in the church.

Although, in the apostolic times, bishops and presbyters were synonymous, and co-ordinate with respect to their ministerial powers, and they were ordained to their office by prayer, accompanied with imposition of hands; yet a certain priority, or presidency, for the sake of order, or in deference either to seniority or to distinguished talents, was allowed to one of their number. But he seems to have been only a kind of moderator in their assemblies, and to have had no more power than that of giving a single vote in common with the rest of his brethren. By those who adopt this reasoning, and who trace the original of the diocesan order of bishops, which was introduced in the second and third centuries, to this practice, it is allowed that pastors were from the beginning vested with a superintendency over the congregation or church merely in spiritual matters; and it is alleged, that some of the titles that are thus given them in Scripture, such as πρεσβυτήριον, πρεσβυτερίου, guides and governors, imply this kind of superintendency. But at this time several things relating to the church were conducted in common by the pastors, the deacons, and the whole congregation. To this class we may refer all matters of scandal and offense, and also the election of their pastors and their deacons. Accordingly, Clement, in the fore-cited epistle, ch. xlvii. speaking of the pastors, uses this expression: "Those who were constituted by the apostles, and afterwards by other eminent men, with the consent of the whole congregation." It appears also, by the epistles of Cyprian, written about the middle of the third century, that for the first three ages of the church, no final resolution was taken in any affair of moment, without communicating it to the people, and obtaining their approbation. In the second century a settled distinction obtained, in several respects, between the president, chosen by a plurality of votes, and distinguished by the appropriate title of bishop, which had before been common to all the presbyters, and the other presbyters. Many other titles, besides that of bishop, which they had all enjoyed in common, were restricted to him who was regarded as their head, such as πρεσβυτήριον, πρεσβυτερίου, πρεσβυτέρου, νεάσκες, πατριάρχης, and some others. These titles, independently of the talents, virtues and services that attended them, claimed respect and deference. The concurrence of the president thus honoured, was considered as a necessary function to all ecclesiastical resolutions and measures; and by degrees every act became valid which bore the stamp of his authority. Those who presided over churches, which were established in some of the principal cities, were honoured with peculiar pre-eminence, and to this advancement analogy to the civil government did not a little contribute. It is not improbable, that the church of Jerusalem, when it became numerous, and was deprived of the ministrv of the apostles, who were gone to instruct the other nations, was the first which chose a president or bishop; nor it it less probable, that the other churches followed by degrees this example.

The first ancient author who mentions bishop, presbyter, and deacon, as three distinct orders in the church, is, as we have already observed, Ignatius, who is supposed to have written about the 16th year of the second century. But as several of the epistles ascribed to him, are spurious, no great stress can be laid upon his authority. However, he feems, with peculiar earmenfes, to inculcate obedience and subjection to the bishop, as well as to the presbyters and deacons. Mr. Dodwell accounts for his zeal in establishing the bishop's authority, by supposing that it was at that time a new thing, totally unknown in the church; and, according to this opinion, he says, that it is in vain to look for any trace of episcopal authority in the New Testament. Ireneus, who is supposed to have written about the middle of the second century, sometimes uses the names bishop and presbyter indifferently, and at other times with some kind of distinction; but it is not easy to determine, whether by these two appellations he means the same order, or two different orders. Dr. Pearson admits that these names are often interchanged by this father, and others of his time, even to the end of the century; but he affirms at the same time, that in regard to their own contemporaries, the offices of individuals are never thus confounded, inasmuch that a person who was in the time a bishop, is not called a presbyter, nor is a presbyter called a bishop. It is allowed, that the distinction of these orders began about this time generally to prevail, though the difference was not nearly so considerable as it became afterwards. Another author, by whom the three orders seem to be discriminated, and whose testimony is commonly adduced in support of their apostolical institution, is Pius, bishop of Rome, who is supposed to have written before the middle of the second century, but after Ignatius and Polycarp: he uses an expression, however, which does not indicate any high opinion of the superiority of the bishop in his time; "Let the prebendaries and deacons reverence thee (the bishop), not as their superior, but as Christ's minister." Clement of Alexandria, at the close of the second century (see his Strom. l. 1.), strongly marks the distinction between presbyter and deacon; but he seems to intimate, that the distinction between bishop and presbyter was, even in his days, comparatively not worthy of his notice. At this time, however, every church had its own pastor, or bishop, and only one under this appellation, and every bishop had only one congregation or church. Sir Peter, afterwards lord, King (ubi infra) has proved these affirmations by a variety of citations from ancient writers; he has also shown, that a bishop's diocese did not exceed the bounds of a modern parish. See DIODE. The prebendaries, according to this writer, were the curates and affilies of the bishop, and though inferior to them in degree, yet they had the same inherent right with the bishops, and were equal to them in order. "A bishop," says this author, "preached, baptized, and confirmed, he did a presbyter; a bishop excommunicated, absolved, and ordained, he did a presbyter; whatever a bishop did, the same a presbyter; the particular acts of their office were the same." In the age of Cyprian, about the middle of the third century, it appears that the prebendaries were considered as vested with the power of conferring orders. (Cyp. Epit. 5. and 75.) In the age of Hilary, about the middle of the fourth century, it appears, that the whole distinction of the episcopate is ascribed by him to seniority in the ministry, without either election or special ordination. When the bishop died, the lesser colleague succeeded of course. As to ordination it was the same in both; and bishop meant no more than a priest among the prebendaries, or a lesser presbyter. Jerome, who wrote about the end of the fourth and beginning of the fifth century, says (In Titum. l. 5. Op. vol. x. p. 1700.) that, among the ancients, priests and bishops were the same; but that by degrees the care of a church was assigned to one person, in order to prevent dispersion. In another place (Op. vol. vi. p. 198.) he says, "Let the bishops know, that they are above priests more by custom than by the appointment of Christ." He also observes (Aeneidotes, p. 24. 54.) that at the beginning, churches were governed by the common council of prebendaries, like an aristocracy; but afterwards the superintendency was given to one of the prebendaries,
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Who, as is then called the bishop, and who governed the church, but still with the council of the prebysters. Dr. Hammond (Ann. Acts xi. 35.) has advanced a singular opinion, viz. that the apostles instituted only the offices of bishop and deacon, and that the intermediate office of prebyster was soon afterwards introduced. But that such a middle order should be erected at once, immediately after the times of the apostles, is much more unlikely, than that it arose gradually out of an inconsiderable distinction, which had obtained from the beginning.

At the close of the third century, the ecclesiastical government, which very generally prevailed, was of that kind which might justly be denominated a parochial episcopacy. The bishop, who was properly the pastor, had the charge of a single parish; and the parishioners assembled for the purposes of public worship, and for the celebration of religious institutions, in one place, at which the bishop commonly presided; the bishop was supplied by prebysters, who formed his council in judicial and deliberative matters, and who performed religious functions both public and private. To these were added deacons. See DEACON. The next step was the extension of the oversight of one bishop to many congregations, which branched out of the original church by an accession of converts; and in this stage of the progress of episcopacy, the several prebysters had their separate parishes, and continued in subordination to the bishop, who was acknowledged as their common head. At this period, an order of bishops, called choripope, or rural bishops (see CHORIPHOI), held the middle rank between bishops and prebysters, being inferior to the former, and superior to the latter. This state of the church may be denominated dioecesan episcopacy.

Though bishops, in the opinion of those whose sentiments are now representing, were originally no other than prebysters; the manner of their originating being the same, and the prebysters discharging every part of the office of a bishop; no sooner was the distinction between them established, than the bishops began to appropriate certain functions to themselves. It appears, by the act of the third council of Carthage, A. D. 397, that, whereas, before, priests had the power of administering the time of public penance, and of giving absolution, as also of conferring virginity, and of making the churin, without the advice of the bishop, all these things were forbidden by these canons, and appropriated to the bishops. But the principal circumstance by which the bishops were afterwards distinguished, was the power of confirming the baptized, when that churin was applied. See CONFIRMATION. After the reign of Adrian, when Jerusalem was utterly destroyed, and the Jews dispersed, an opinion began to prevail among Christianans, that their ministers succeed to the characters, rights, and privileges of the Jewish priesthood; and this was another source of honour and profit to the clergy. Another circumstance, which contributed in no small degree to the progress of episcopal authority, was the constitution of provincial councils, which infallibly superseded the importance of particular churches, and enabled the bishops by an alliance with them to obtain a much larger share of executive and arbitrary power. As soon as they became connected by a feeble of their common interest, they were empowered to attack, with united vigour, the original rights of their clergy and people. "The prelates of the third century," says Gibbon (Hist. vol. ii. p. 335, &c.), "imperceptibly changed the language of exhortation into that of command, scattered the seeds of future usurpations, and flipp'd, by scripture allegories and declamatory rhetoric, their deficiency of force and reason. They exalted the unity and power of the church, as it was represented in the episcopal office, of which every bishop enjoyed an equal and undivided portion. Princes and magistrates, it was often repeated, might hold an earthly claim to a transitory dominion; it was the episcopal authority alone, which was derived from the deity, and extended itself over this and another world. The bishops were the vicegerents of Christ, the successors of the apostles, and the mystic substitutes of the high priest of the Mosaic law. Their exclusive privilege of conferring the facerdotal character invaded the freedom of clerical and popular election; and if, in the administration of the church, they still consulted the judgment of the prebysters, or the inclination of the people, they most carefully inculcated the merit of such a voluntary coöperation. The bishops acknowledged the supreme authority which reigned in the assembly of their brethren; but in the government of his peculiar diocese, each of them exacted from his flock, the same implicit obedience, as if that favourite metaphor had been literally true, and as if the shepherd had been of a more exalted nature than that of his sheep. The same caesars, which at first had destroyed the equality of the prebysters, introduced among the bishops a pre-eminence of rank, and from thence a superiority of jurisdiction. In spring and autumn, when they met in provincial synods, the multitude was governed by the will of a few; and, besides, the office of perpetual presidents in the councils of each province, was conferred on the bishops of the principal city; and these aspiring prelates, who soon acquired the lofty titles of metropolitans and primates, secretly prepared themselves to usurp over their episcopal brethren the same authority which the bishops had to lately assumed above the college of prebysters. Hence gradually arose the pre-eminence which the ambition of the Roman pontiff gained over the other provinces and churches. King's Constitution, &c. of the Primitive Church, ch. 1—v. Campbell's Eccl. Hist. vol. ii. Moth. Eccl. Hist. vol. i. p. 104, &c. Neal's Hist. Purit. vol. i. p. 670, &c. 410. Pierce's Vindication.

It is the opinion of many approved writers on this subject, among whom may be reckoned many episcopalian and dissenters in our own country, and many learned foreigners, that no particular form of church government was authoritatively preferred either by our Lord or his apostles; but that Christianans were left at liberty to choose such as might be best adapted to their circumstances and to the state of society, and most conducing to the edification and tranquillity of the church, and of individuals in future ages. See CHURCH.

When new occasions required new measures, in a little time the functions of the priesthood were divided, and the prelats distinguished into degrees; the political part of religion being assigned principally to bishops, and the evangelical to the priests, &c. or rather, as some will have it, the functions of teaching and preaching were referred to the bishop, and that of ordination superadded; which was their principal distinction, and the mark of their sovereignty in their diocese.

By the ancient discipline, bishops were to be married once, and not to put away their wives on pretence of religion; but a second marriage was a disqualification for this order. If they lived chaste, they were ranked as confessors.

Some bishops in the middle ages, on account of their regalia, or temporalities, were obliged to a military service called bojitis, by which they were to lead their valets into the field, and attend the king in his military expeditions. This Charlemagne excused, and even forbade; but the prohibition was little regarded, since we find the thing often practised afterwards. Du Cange.

The election of bishops was anciently placed in the clergy and
and the people of the parish, province, or diocese, or of the clergy and laity, as they were afterwards called; nor did any church apply to the neighbouring bishops to assist at the ordination. Trenchus was ordained by priests only; and such was the general custom of the church of Alexandria, till the beginning of the fourth century. Cyprian also says, that it belonged to the people chiefly to choose worthy pastors, and to refuse the unworthy. Thus Alexander was chosen bishop of Jerusalem. Fabianus and Cornelius of Rome, and Cyprian of Carthage. When the people had thus elected a bishop, they presented him to the neighbouring bishops for their approbation and consent; because, without their concurrent assent, no bishop could be legally instituted or confirmed. This was the case with regard to Alexander, already mentioned, and Sabinus, bishop of Emerita in Spain. After election and confirmation, the next act was the ordination or investiture of the bishop, which was done in his own church by the neighbouring bishops, who were invited to attend on the occasion. The attendance of the neighbouring bishops, which seems to have been at first voluntary on both sides, became customary, and at length necessary; and it was an established rule, that the concurrence of these was indispensible, one of whom laid his hand on the head of the new bishop, when he was recommended by prayer to the blessing of God. In the third century, this was always done by the metropolitan bishop; or at least it was never done without his consent or order. The second council of Nice ordered that bishops should be chosen by other bishops; but in the west, the people preferred the right of choosing their bishops, till after the reign of Charlemagne and his sons; and it was not taken from them till the council of Avignon, in 1550.


Under the plea of the tumult that attended popular elections, the emperors and other sovereigns of Europe, took the appointment in some degree into their own hands; referring to themselves the right of confirming these elections, and of granting investiture of the temporalities, without which confirmation and investiture, the elected bishop could neither be consecrated, nor receive any secular profits. This right was acknowledged in the emperor Charlemagne, A. D. 773, by pope Adrian I. and the council of Lateran, and universally exercised by other Christian princes; but the policy of the court of Rome contrived to exclude the laity from any share in these elections, and to confine them wholly to the clergy; but the mere form of election appeared to the people to be of little consequence, while the crown was in possession of an absolute negative, which was almost equivalent to a direct right of nomination. Indeed, princes and magnates, patriarchs and popes, have usurped the power of electing bishops. The election was to be within three months after the vacancy of the see; and the person to be chosen out of the clergy of that church. Formerly the bishop claimed a share in the election of an archbishop; but this was set aside by the popes.

In England, during the Saxon times, the right of appointing to bishoprics is said to have been in the crown, because the rights of confirmation and investiture were, in effect, though not in form, a right of complete donation. But when, by length of time, the custom of making elections by the clergy was fully established, the popes began to except to the usual method of granting these investitures, which was “per annumum et baculum,” by the prince’s delivering to the prelate a ring, and pastoral staff, or crozier; pretending that this was an encroachment on the church’s authority, and an attempt by these symbols to confer a spiritual jurisdiction; and pope Gregory VII. about the close of the 11th century, published a bull of excommunication against all princes who should dare to confer investitures, and all prelates who should venture to receive them. At length, however, when the emperor Henry V. agreed to remove all suspicion of incroachment on the spiritual character by conferring investitures for the future “per seepetrum” and not “per annumum et baculum;” and when the kings of England and France contented also to alter the form of their kingdoms, and receive only homage from the bishops for their temporalities, instead of investing them by the ring and crozier; the court of Rome found it prudent to suspend, for a while, the other pretensions. This concession was obtained from king Henry I. in England, by means of that obilinate and arrogant prelate archbishop Anselm; but king John, about a century afterwards, in order to obtain the protection of the pope against his discontented barons, was also prevailed upon to give up by a charter, to all the monasteries and cathedrals in the kingdom, the free right of electing their prelates, whether abbots or bishops; reserving only to the crown the custody of the temporalities during the vacancy; the form of granting a licence to elect, which is the original of our "congé d’élecr," on refusal whereof the electors might proceed without it, and the right of approbation afterwards, which was not to be denied without a reasonable and lawful cause. This grant was expressly recognized and confirmed in king John’s Magna Charta, and was again established by flat. 25 Ed. Ill. 6. § 3. But by flat. 25 Hen. VII. cap. 20, the ancient right of nomination was, in effect, restored to the crown. The English consecration of prelate bishops stands on this ground. The king being certified of the death of a bishop by the dean and chapter, and his leave requested to elect another, the conég d’élecr, or usual licence, is sent to them, with a letter missive, nominating the person whom he would have chosen. The election is to be within two days after the receipt of it, otherwise the king by letters patent appoints whom he pleases; and the chapter in case of refusing the person named by the king, incurs a premarvce. The election or nomination, if it be of a bishop, must be signified by the king’s letters patent to the archbishop of the province; if it be of an archbishop, to the other archbishop and two bishops; or to four bishops; requiring them to confirm, invest, and consecrate the person so elected; which they are bound to perform immediately, without any application to the see of Rome. If such archbishop, or bishops, refuse to confirm, invest, and consecrate such bishop elect, they shall incur all the penalties of a premarvce. After election, and its being accepted of by the bishop, the king grants a mandate under the great seal for confirmation, which the archbishop confers to his vicar-general, confining mostly in a solemn citation of such as have any objections to the bishop elect, a declaration of their contentious in not appearing; and an administration of the oaths of allegiance and supremacy, of homage, and canonical obedience. Sentence being read by the vicar-general, the bishop is installed in the province of Canterbury by the archdeacon; the act is recorded by a public notary; and the bishop is invested with full powers to exercise all spiritual jurisdictions, though he cannot use for his temporalities till after consecration. Then follows the consecration by the archbishop, or some other bishop appointed by lawful collations, and two suffit bishops: the ceremony of which is much the same as in the Romish church, save that, having put on the episcopal robe, the archbishop and bishops lay their hands on the new prelate’s head, and consecrate him with a certain form of words. The fees of the whole proceed are said to amount to about 600l. 1

1 The proceeds of the translation of a bishop to another bishopric.
he is then examined as to his faith; and after several prayers, the New Testament is drawn over his head, and he receives the串munion and unction on his head. The pastoral staff, ring, and Gospels, are then given him; and after communion, the mitre is put on his head: each ceremony being accompanied with proper prayers, &c. the consecration ends with Te Deum.

These last mentioned ceremonies are laid aside in the consecration of English bishops. Nevertheless, the book of consecration, composed by the bishops, and approved by Edward VI. in the third year of his reign, and two years afterwards, confirmed by act of parliament, in which some of them are enjoined, is declared to be the standard for this purpose by the thirty-sixth article. In queen Mary's reign this act was repealed, and the book of common prayer, and the book of ordination, were by same condemned. When Elizabeth came to the throne, queen Mary's act was repealed, and king Edward's prayer-book was again authorized; but the book of ordination was not expressly named, because it had been a part of the common prayer book; and therefore it was not thought necessary to specify the office of ordination any more than any other office of the common prayer book. But bishop Bonner contended, that as the book of ordination had been by common condemned in queen Mary's reign, and had not been since revived by name, it was still condemned in law; and, consequently, that all ordinations conferred according to that form, were illegal and invalid. To obviate this objection, it was declared in a subsequent session of parliament, that the office of ordination was considered as part of the common prayer book; and it was further declared, that all ordinations which had been performed according to that office, were valid; and upon the same principle a similar clause was inserted in the 36th article.

The function of a bishop in England may be considered as two-fold: viz. what belongs to his order, and what belongs to his jurisdiction. To the episcopal order belong the ceremonies of dedication, confirmation, and ordination; to the episcopal jurisdiction, by the statute law, belong the licensing of physicians, surgeons, and schoolmasters, the making small parishes (though this last privilege is now peculiar to the bishop of Norwich), assiling the civil magistrate in the execution of statutes relating to ecclesiastical matters, and compelling the payment of tithes and subsidies due from the clergy.

By the common law, the bishop is to certify the judges, touching legitimate and illegitimate births and marriages; and by that and the ecclesiastical law, he is to take care of the probate of wills, and granting administrations; to collate to benefices, grant visitation on the presentation of other patrons, command induction, order the collecting and preferring the profits of vacant benefices for the use of the beneficaries, defend the liberties of the church, and visit his diocese once in three years. To the bishop also belong suffragio, deprivation, deposition, degradation, and excommunication.

The bishops of England are all barons: barons in a three-fold manner: viz. feudal, in regard of lands and baronies annexed to their bishopries; by writ, as being summoned by writ to parliament; and also by patron and creation. When William the Conqueror thought proper to change the spiritual tenure of frank-almoign, or free alms, under which the bishops held their lands during the Saxon government, into the feudal or Norman tenure by barony; their clergies were subjected to all civil charges and alleviations, from which they were before exempt; and, in right of succession to those baronies, which were unalienable from their respective
positive dignities, the bishops and abbots were also vested their seats in the house of lords. But though these lords spiritual are, in the eye of the law, a distinct estate from the lords temporal, and are so distinguished in most of our acts of parliament, yet in practice they are usually blended together under one name of "the lords;" they intermix in their votes; and the majority of such intermixtures joins both estates. And from this want of a separate assembly, and separate negative of the prelates, some writers have argued very cogently, that the lords spiritual and temporal are now in reality only one estate; which is unquestionably true in every effectual sense, though the ancient distinction between them still nominally continues. For if a bill should pass their house, there is no doubt of its validity, though every lord spiritual should vote against it, of which Selden and Sir Edward Coke give many instances; as, on the other hand, judge Blackstone prefixes it would be equally good, if the lords temporal present were inferior to the bishops in number, and every one of those temporal lords gave his vote to reject the bill; though Sir Edward Coke seems to doubt, whether this would not be an " ordinance," rather than an "act," of parliament. El. Com. vol. i. 156. Bishops have the precedence of all other barons, and sit in the upper house as barons. They are twenty-four in number, exclusive of the bishop of Sodor and Man, who has no seat in the house of peers, besides two archbishops. Archbishops are distinguished by the titles of "Grace," and "Most reverend father in God by divine Providence;" and bishops, by those of "Lord," and "Right reverend father in God by divine permission." The former are said to be "infronied," and the latter "infallible." See Archbishop.

With respect to the order of precedence among one another, the archbishop of Canterbury takes the lead, then the archbishop of York, next to him the bishops of London, of Durham, and of Winchester. The other bishops follow according to the seniority of their consecration; excepting only, that a bishop being a privy counsellor, takes place after the bishop of Durham.

Bishops have two great privileges next to regal: the first, that in their courts they sit, and pass sentence, of themselves, and by their own authority; the bishops' courts being not like other courts, but writs are sent out in their own name, to the bishop, not in the king's name, as is done in the king's courts: the second, that, like the king, they can deputize their authority to another, as their suffragan, chancellor, commissary, &c.

They have this advantage also over lay-lords, that, in whatever Christain country they are, their episcopal degree and dignity are acknowledged; and they may, quatenus bishops, ordain, &c.

They have several immunities, as from arrest, outlawries, distress, &c. liberty to hunt in the king's forests, &c. to have certain sums of wine duty free, &c. Their persons may not be seiz'd, as lay-peers may, upon contempt, but their temporalities alone. They may qualify as many chaplains as a duke, viz. fix. But, as they have no right to be tried in the court of the lordship, as peers, they ought not to be judges there. For, though they are lords of parliament, and sit there by virtue of the baronies, which they hold "jure ecclcsiae," yet they are not ennobled in blood, and consequently not peers with the nobility, but merely lords of parliament. 3 Inst. 30, 31. Stauf. P. C. 253. In cases of capital offence, the bishops usually withdraw voluntarily, but enter a protest, declaring their right to stay. It is observable, that in the 11th chapter of the constitutions of Clarendon, made in parliament 1 Henry II. they are expressly excused, rather than excluded, from sitting or voting in trials, when they come to concern life or limb. The determination of the house of lords in the earl of Danby's case, (Lords' Journ. 15 May, 1679), which hath ever since been adhered to, is consonant to these constitutions, "that the lords spiritual have a right to stay and sit in court in capital cases, till the court proceeds to the vote of guilty, or not." This resolution, however, extends only to trials in full parliament; for to the court of the lord high steward, in which no vote can be given but merely that of guilty, or not guilty, no bishop, as such, ever was or could be summoned: and though the statute of King William regulates the proceedings in that court, yet it never intended to new-model or alter its constitution, and consequently does not give the lords spiritual any right in cases of blood which they had not before; and their exclusion is more reasonable, because having no right to be tried in this court, as we have already said, they ought not to be judges there.

By law, the crime of episcopal, which a clergyman commits by killing his bishop, is petty treason.

In Canada there is a bishop, resident at Quebec; and there are two bishops in America. In Denmark they have no archbishop, but there are five superintendents, or bishops; four in Norway, and two in Iceland. The chief see is that of Zealand, which yields about 1000l. a year; the others are those of Funen, valued at 760l., Aarhus at 600l., Aalborg at 400l., Ribe at 300l.; in Norway, Christiana or Aggerhus at 400l., Christianland at 600l., Bergen at 400l., and Drontheim at 300l. The bishoprics of Skalhol and Holm, in Iceland, are only valued each at 150l.; but though far inferior in nominal value to the others, they may be considered, on account of the cheapness of living in Iceland, equal in real profit to the largest of the other. The bishop of Zealand, who is first in rank, and the bishop of Aggerhus, are metropolitans. They have no temporalities; keep no ecclesiastical courts; have no cathedrals or prebends, &c. but are only primi inter pares, having the rank above the inferior clergy of the province, and inspection over their doctrine and manners. They are allowed two or three parishes each. Their habit is common with that of the other ministers. In Sweden are fourteen dioceses; the archbishopric of Upsala, and the bishoprics of Linkoping, Skara, Streng promotions, Wecleras, Wexio, Abo, Lund, Bor- go, Gothcberg, Calmar, Carlctad, Herionland, and Wifh-, or Gotland. The revenues of Upsala and Wecleras amount to about 1000l. a year; and those of the lowest bishoprics to 300l. There are also three superintendents, who rank as bishops, but do not sit in the house; these are the first chaplain to the king, the rector of St. Nicholas at Stockholm, and the first chaplain of the navy. The bishops are bound to reside, except during the meeting of the diet. A conßùry of the clergy of the diocese elects the archbishop and bishops, by presenting them to the king for his nomination. They have also ecclesiastical courts, &c.

Bishop-ulhor, episcopus abbas, was an abbot invested with the episcopal order; of which we meet with several in the richer and more considerable monasteries.

Bishop, acrarchibula, he who is immediately subject to the papal see, without any metropolitan over him.

Bishop, bor. It was an ancient custom in such churches as had cathedral service, for the little choristers, on St. Nicholas' day, December the 6th, to elect one of their number to be the episcopus purorum, the beam, i.e. infant, or chorister bishop; who continued to preside over the ref, with an imitation of all the episcopal functions, till Innocent's day, Dec. 28, and then, after solemn proceessions and great pageantry, he laid down his office. He was chosen.
BISHOP.

chosen on St. Nicholas' day, because St. Nicholas was the
patron saint of children; he dying, when an infant, shewn
such singular piety, as the legend says, that when he was
at his mother's breast, he would not suck on Wednesdays
and Fridays, that he might observe the fasts of the
chapel.

The ceremonies attending the investiture of the episcopus
prœorum, are prescribed by the statutes of the church of
Sarum, which contain a title de episcopo chapt¡rorum; and
also by the provincial. From these it appears, that he
was to bear the name and state of a bishop, habited, with a
crozier or pastoral staff in his hand, and a mitre on his head.
His fellows, the rest of the children of the choir, were to
take upon them the style and office of prebendaries, and
yield to the bishop canonical obedience; and farther, the
same service as the very bishop himself, with his dean and
prebendaries, had they been to officiate, were to have per-
formed, the very same, maps excepted, was done by the
choristers and his canons upon the eve and the holiday.
The use of Sarum required also, that upon the eve of Ino-
cent's day, the chorister bishop, with his fellows, should go
in solemn procession to the altar of the Holy Trinity, in
cops, and with burning tapers in their hands; and that
during the procession, three of the boys should sing certain
hymns mentioned in the rubric. The procession was made
through the great door at the west end of the church, in
such order, that the dean and canons went foremost, the
chaplain next, and the bishop, with his little prebendaries,
last; agreeably to that rule in the ordering of all proce-
cessions, which assigns the rearward station to the most honour-
able. In the choir was a seat or throne for the bishop; and as to
the rest of the children, they were disposed on each side of
the choir, upon the uttermost acent. And to careful was
the church to prevent any disorder which the rude curiosity
of the multitude might occasion in the celebration of this
singular ceremony, that their statutes forbid all persons what-
ever, under pain of the greater excommunication, to inter-
rupt or pres on the children, either in the procession or
during any part of the service directed by the rubric; or
any way to hinder or interrupt them in the execution or
performance of what it concerned them to do. Farther it
appears, that this infant-bishop did, to a certain limit, re-
cive to his own use, rents, capons, and other emoluments of
the church. In case the little bishop died within the
month, his exequies were solemnized with great pomp; and he
was interred, like other bishops, with all his ornaments.

The memory of this custom is preserved, not only in the
ritual books of the cathedral church of Salisbury, but by a
monument in the same church, with the sepulchral effigies
of a chorister bishop, supposed to have died in the exercice of
his pontifical office, and to have been interred with the
funerality above noted.

From what period we are to date the progress of this ri-
diculous ceremony, it is not easy to discover, but it seems
more than probable that it originated with the ancient
Mysteries. In the wardrobe accounts of Edward I, pub-
lished by the society of antiquaries, we find a boy-bishop, Dec.
7, 1290, saying vespers before the king, in his chapel
at Herton, near Newcastle upon Tyne, for which he, and
the boys who sung with him, received 40s.

This establishment, but with a far greater degree of buf-
foonery, was common in the collegiate churches of France.
(See Dom. Marlot. Histoire de la Metropole de Rheims,
tom. ii. p. 769.) A part of the ceremony in the church of
Noyon was, that the children of the choir should celebrate
the whole service on St. Innocent's day. (Brit. Diction-
naire des Arrets, artíc. Noyon. ed. 1727.) In a curious book,
called Voyages Liturgiques de France (Par. Soc. 1715,
p. 45) is this account of the same practice in the church of
Vienne in Dauphiny. "Le jour de Noël après Vêpres,
jour de St. Étienne, et le jour de St. Jean l'Évangéliste, on
faizoit des procéssions solennelles pour les dîners, les préces,
et les enfants de Chœur, comme autrefois à Rouen. Il y
avait aussi le lendemain à la même solennité pour eux. Les
enfans de Chœur y avoient leur Petit Evêque, qui faifoit
tout l'office, excepté à la messe." And in the statutes of the
archiepiscopal cathedral of Tyllus, given in the year 1497,
it is said, that during the celebration of the festival of
the boy-bishop, "Moralités were presented, and flown of mi-
racles, with farces and other sports, but compatible with
decorum. After dinner they exhibited, without their masts,
but in proper dresses, such farces as they were masters of
in different parts of the city." In England too, it appears,
that the boy-bishop, with his companions, went about to
different parts of the town; at least visited the other reli-
gious houses. (See the Computus Rolls of Winchester-
College, A. 1461.) And Strype records (Eccles. Memo-
rials, iii. 310. ch. xxxix. and p. 387. ch. 1.), that when this,
among other ancient ceremonies, was restored by Queen
Mary, in 1556, "on St. Nicholas' even, St. Nicholas, that is,
a boy habitcd like a bishop in punctilios, went abroad in
most parts of London, singing after the old fashion, and
was received with many ignorant but well disposed people
into their houses, and had as much good cheer as ever was
wont to be had before." In the statutes of Eton college, given in 1441,
the episcopus prœorum is ordered to perform divine service on St.
Nicholas's day; and in those of Winchester college, 1586,
pœris, that is, the boy-bishop, and his fellows, are permitted
on Innocent's day to execute all the sacred offices in the
chapel, according to the use of the church of Sarum. A
similar clause to that at Eton occurs in the statutes of King's
college, Cambridge; and Mr. Warton, oberserves, in his
History of Poetry, that the anniversary custom at Eton,
of going ad moniem originated from the ancient and pop-
rular practice here described.

In a small college, for only one provost, five fellows, and
six choristers, founded by archbishop Rotherham in 1581,
in the obscure village of Rotheram, in Yorkshire, this piece
of mummery was not omitted. The founder leaves by will,
among other bequests to the college, "a matter for the
barnes-bishop of cloth of gold, with two knoppes of silver,
674. 686.

From the passage already quoted from the Voyages Liturgiques de France, it appears that, at least in one
church, the mass was not allowed to be celebrated by the
boy-bishop; and it is also expressly prohibited in the use of
Sarum, but other and more frequent instances occur where
the buffoonery was carried even to this height. In a fragment
of the calendars Computus of Hyde abbey near Winchester,
A. D. 1397, we have a charge "pro opulnis pueri cele-
brantis in fefto Saneti Nicolaci," and late even as the reign
of Henry VIII., we find the same ceremony at St. Paul's.

It is surprising that Dean Colley, a friend to the purity of
religion, and who had the good sense and resolution to
confume the superflitions and poperies of popery in his pub-
lie sermons, should countenance this idle farce of the boy-
bishop in the statutes of his school at St. Paul's, which he
founded with a view of establishing the education of youth
on a more rational and liberal plan than had yet been known,
in the year 1512. He expressly orders, that his scholars "shall
every Childermas (that is Innocent's) day, come to Paul's
churche, and hear the childe-bishop's (of St. Paul's cathedral)
sermon
BISHOP.

BISHOPS, **regional.** See **REGIONARY.**
BISHOPS, **rural.** See **CHIEF BISHOPS.**
BISHOPS, **suffragan,** are coadjutors or vicars of diocesan bishops, authorized by commission from them.
BISHOPS, **vagus,** those without any diocese, sometimes attendant in camps, or in foreign countries, for the conversion of infidels. The like vague bishops were sometimes also granted by popes to monasteries, exempt from the jurisdiction of the diocesan, where they performed all the episcopal functions. Du-Cange.

BISHOP, **universal or catholic,** is a title given to the patriarch of Armenia.

BISHOP of the **catholic or universal church,** a title sometimes assumed by the popes.

BISHOPS, in the **Lutheran Church,** are those more usually called **superintendents,** which fee.

The Calvinites allow of no other bishops besides presbyters; but the Lutherans make some distinction, and give a superiority or pre-eminence over the rest of their "bishops," "superintendents," or "overseers."

BISHOP is also a quality sometimes attributed to secular princes, in respect of their supremacy or jurisdiction in matters belonging to religion. See **SUPREMACY.** In this sense it is that the emperor Constantine, in a letter to the bishops in his dominions, calls himself "common bishop," as being in some respects general bishop of the whole Roman world.

BISHOP of the **Jews,** the head of that people in England, chosen by themselves, to whom they submitted to be judged and governed according to their law. Prideaux's **Constit.** part ii. lib. v. p. 478. This office, which subsisted under our Norman kings, and was licensed by them, was an earl of **MAYFAIRS** in Babylon, and the **ADABACHS** in Egypt.

BISHOPS at **thefs,** a kind of piece, the third in rank, below queens, but above knights, distinguished by their cloven heads. In Latin writers of the middle age, the bishop is called *epiphanius,* and by the French *le fou,* the *fool* or *madman.* See **CHESS.**

BISHOP's **Court,** See **COURT.**

BISHOP's *fee,* or *feoff,* originally denoted the throne or chair in the church where the bishop sat. It was also denominated in **APRIS.**

BISHOP's *fee* also denotes the city or place where the residence of the bishop is fixed.

Every bishop's *fee* was anciently called "feudes apostolica;" though the appellation has since been restrained to the *fee* of Rome.

Antiently bishops seem to have had a right in England to sit as judges in the hundred and county-courts. In after-times, they were forbid to sit in secular courts, and had separate courts erected for them; which proved an occasion of much dispute between the two jurisdictions. No church tenant might be sued in any court but the bishop's. There are also traces of a separate court of the bishops much earlier, among our Saxon ancestors in the eighth century. The regard borne to the character of bishops, made them the common arbitrators even of secular causes; they had the cognizance of all causes concerning lands in "frank-almoiny;" and for ecclesiastical, were judges even in capital causes.

BISHOP's *weeds,* in Botany. See **AMNI.**
BISHOP.

BISHOP, Bird, in Ornithology. See Tanagro Episcopus.

BISHOP and His Clerks, in Geography, a cluster of dangerous rocks, near the west coast of South Wales, at the entrance of St. George's channel, four miles west of St. David's. N. lat. 51° 54'. W. long. 5° 20'.

BISHOP'S AUCTION. See AUCKLAND.

BISHOP'S CASTLE, a market and borough town of Shropshire, in England, spreads its scattered houses over the side of a considerable eminence, at the base of which runs the small river Clun. This town is an old corporation, and made its first return to parliament in the 27th of Elizabeth. Previous to that period, it belonged to the fee of Hereford, and derived its name from being one of the seats, or elevated mansions of the bishops. The corporation consists of a bailiff, recorder and fifteen aldermen, who, with about thirty other inhabitants, call themselves burgesses, elect two members for the town. Here is a large weekly market on Fridays, which is much frequented by the Welsh, as are its six annual fairs. At some of the latter a great quantity of sheep and pigs are sold. This town was formerly under the protection of a castle, which is entirely destroyed. Bishop's castle is 156 miles N. W. from London. It contains 241 houses, and 1076 inhabitants.

At Shrewsbury, about two miles and a half N. W. from Bishop's castle, a priory of black canons was founded in the time of Henry III., but was soon afterwards removed to Chester. This place, seated near the Severn, is supposed to have been built by Ethelbeda, and was afterwards pulled down by the family of the Herverts, one of whom was created Lord Herbert of Chester. This gentleman wrote an account of his own life, which has been published by Horace Walpole at his private press at Strawberry hill. Not far from this town on the borders of Montgomeryshire, is an ancient encampment called Bishop's Mount; and at Clun are the remains of an ancient castle, near which is a camp called Bryd-dybech. About three miles hence is Wolver, the seat of lord Clive, who is patron of this borough. In the vicinity of Bishop's castle, are three lofty irregular hills, respectively named Condon-hill, Church-Stoke-hill, and Squill-hill.

At Moor Park, is an respectable mansion, the grounds are finely diversified, and abound with fine woods.

BISHOP'S ISLAND, a small rocky island in Mal-bay, on the west coast of the county of Clare, in Ireland. N. lat. 52° 38'. W. long. 9° 35'. Beaufort.

BISHOP'S STORTFORD, a market town of Hertfordshire, in England, is placed on the side of a hill, near the western borders of Essex. Situated in the midst of a corn country, it is remarkable for its number of malt-houses, and for the quantity of malt annually made here; this is distinguished by the name of brown malt, and is dispensed principally to the London brewers. It is connected by the metropolis in barges, by a navigable canal, which was cut in 1779, and which joins the river Lee, at about 14 miles distance from this town. Before this navigation was opened, the malt, which is now lodged here, was carried to Ware and Stanfield, as the nearest places for water-carriage; but since the above period, Stortford has become the depot for the malt made in this town and the neighbouring villages.

This place was evidently of some note previous to the conquest, as it appears from the Domesday Survey, that the conqueror gave the town and castle to Maurice, bishop of London. From this evidence it appears, that the castle here, which bore the name of Waytemore, was standing prior to the Norman invasion, though some writers assert that it was erected by William. It was probably repaired and strengthened by him, but Mr. Salmon forms justified in the opinion, that it was constructed by the Earl Sexon to defend their borders. The lands paying castle-ward, lie between this place and the Ermine street, one of the great Anglo-Roman roads. The hill, or keep, on which the castle flour, is artificial, being evidently railed with earth brought from some distance. On the top was a well, and a breachwork of stone and mortar. A bank of earth runs from the summit across the muddy ground to the north-east. "This castle," says Salmon, "must have been of some consequence in the time of king Stephen, because of the great defence Geoffrey de Magnanville had, either to be master of it, or to have it pulled down; and Maud the empress engaged him to do one or other." The feignery derived from this fortification gave origin to the town, which had increased to some consequence in the time of king John, who created it a borough, and invested the inhabitants with certain corporate privileges. This monach seized the castle and town from W. de St. Mary, the bishop of London, who was one of the three bishops deputed to execute the pope's interdict upon England. This period was distinguished by the alarming jealousies and animosities between the king and the pope. This was a time of Edward III. the town and castle, &c. again reverted to the bishop of London, in whose fee it still continues, and who appoints a bailiff for this liberty, which includes the town and thirteen contiguous parishes. The bishop's prison was standing in Bishop Bonner's time, but that and all the other old buildings have been since demolished.

The streets of this town are disposed in the form of a cross, with two long streets intersecting each other at right angles. Though no particular manufacture is carried on here, yet the town is respectable and populous; it contains 456 houses, and 2305 inhabitants. Here are a very considerable weekly market for grain, &c. on Thursdays, and three annual fairs, which are mostly appropriated to the sale of horses and cattle.

The church, dedicated to St. Michael, is a large lofty structure, and, like most buildings, dedicated to that saint, stands on the highest ground in the neighbourhood. There were formerly three guilds and a chantry endowed here; and in the choir are nine stalls on each side. The interior of this building is decorated with a number of monuments, some of which are ancient. The great tythes of the parish are in the hands of laymen. In the town are some meeting-houses for dissenters, methodists, and quakers, also some shambles, and a school-house. The latter was built from a subscription among the gentlemen of Hertfordshire and Essex, who were invited to this act by Dr. Thomas Tooke. This gentleman zealously indefatigably in promoting and establishing the foundation, which has proved beneficial to the town and highly honourable to its founders and patrons. The building stands on arches, beneath which is a space for market and shops. Dr. Tooke revived an annual school-feast here, and charged his own estate with an annual present to the preacher. He also gave a challenge of 20l. to the church, and was a great benefactor to the school-library, which is a good one, and was first established by the Rev. Thomas Leigh, who was vicar of the church in 1685, &c. Besides other donations to this library, it is customary for every gentleman to present a book at the time of leaving the school. Bishop's Stortford derives its compound name from being the property of the bishop of London at an early period, and from its situation on the banks of the river Stort, which separates it on the east from the hamlet.
hamlet of Hockerill. At a short distance north of this town is Hadham parva, which is noted from being the burial place of the Capes, earls of Essex. Bishop's Stortford is 30 miles north of London. Salmon's History of Hertfordshire.

Bishop's Waltham, a small town of Hampshire, in England, derives a part of its name from having been a seat of the bishops of Winchester. Some of their palaces still remain at a small distance west of the town, and the site now belongs to the fee. Leland describes it as "a right ample and goodly manor place, noted aboute, and a praty brooke running hard by it. It hath been of many bishops' buildings." The celebrated William of Wykeham, bishop of Winchester, resided here during the last three years of his life, and died in this transept, A.D. 1404, in the 8th year of his age. The house was partly demolished in the civil wars of Charles I. when bishop Kyri was in possession. Bishop's Waltham is noted for its schools, both for gentlemen and ladies. It contains 191 houses, and 1733 inhabitants, and has three annual fairs.

About five miles south of the town is Wickham, a village rendered memorable from being the birth-place of the above-named bishop. See Wykeham.

BISHOPING, in Horfamomthep, is a term probably derived from Bishop, the name of a horse-dealer, and denoting a trick of the dealers in horses for making them appear younger than they are, with a view of imposing upon the purchaser.

This is done by excavating the corner tooth of the incisors with a file, gravel, or file, and afterwards blackening the cavity with a hot iron. This mark, or excavation, is deemed by many the criterion of age, and that the horse is young while this is preserved.

To avoid being imposed upon, the purchaser should consider the general figure, not only of the corner tooth, but of all the incisor teeth of the upper and lower jaw, for they all undergo a perpetual change of figure by age and wear.

An incisor tooth of the horse, at its first emerging from the jaw, has the visible part of it flat, and covered every where with enamel; the outside sharp and projecting higher than the infide, with a conical cavity in the middle, of various depth in different horses, which renders it of not much value in deciding upon the age; in some it is so short as to be obliterated by the fifth year; in others it is so long as to be found till nine or ten, or later; it is, therefore, not a certain criterion of age: the general figure of the tooth is more to be depended upon in our estimation. The lateral width of the recent tooth, and its flatness, are very remarkable, and can never be imitated; as this wears away the tooth daily increases in its transverse width, that is from front to back, and diminishes in its lateral width, forming, as the wear advances, nearly a triangle; these angles at length by age gradually disappear, and the tooth presents a rounded surface on its upper part, and at length the tooth becomes flattened on the sides, and actually wider from front to back than from side to side. For it should be recollected that the tooth is formed in its whole extent previous to its appearance externally, and that the jaw is absorbed, to allow of its wear; the enamel, like a shell, describing the figure and boundary of the tooth, which hollow shell is afterwards filled up with bone. A transverse section, therefore, of the tooth, or a series of them at different distances from its point, afford the exact figures of the surfaces of the teeth at the various periods of their wear, and allowing for contingencies which occasion the teeth to be worn with more or less rapidity, as in crib biters, &c., will afford the truest criteria of age, and render impolition in this way impracticable.

The teeth also they pretend, in some instances, to excavate on the infide, and to sharpen with a file; these bungling attempts, however, in no way resemble the natural markings or surface of the tooth; nor could impose upon any one the least experienced in observing the teeth. For what we consider the best indications of the age of horses, however, we refer the reader to the article Teeth of Horses.

BISHOPRIC, the jurisdiction of a bishop, or the district within which it is comprised, called also "diocese," which fee.

There are twenty-four bishoprics, and two archbishoprics, in England and Wales. To the old ones subsisting before the times of the Reformation, Henry VIII., by letters patent added six more bishoprics; viz. those of Westminister, Chester, Gloucester, Peterborough, Brifton, and Oxford, flat. 34 and 35 Hen. VIII., cap. 17. These fees were all founded in the course of the years 1540, 1541 and 1542.

The fee of Westminister, having never had but one bishop, was united to that of London, and its bishop translated to Norwich, by Edward VI., in 1550. The remaining bishoprics are comprehended under two provinces, those of Canterbury and York. The province of Canterbury includes the following bishoprics, viz.: 1. The bishopric of London, containing Essex, Middlesex, and part of Hertford, and extending its jurisdiction to the West India Islands. 2. Winchester, comprehending Surry, Hampshire, and the isles of Wight, Jersey, Guernsey, and Alderney. 3. Litchfield and Coventry, to which belong Stafford, Derby, and part of Warwick and Shropshire. 4. Lincoln, comprehending Lincoln, Leicester, Huntingdon, Bedford, Buckingham, and part of Hertford. 5. Ely, containing Cambridgeshire. 6. Salisbury, to which belongWilts and Berkshire. 7. Exeter, including Cornwall and Devon. 8. Bath and Wells, comprehending Somersetshire. 9. Chester, to which belongs Suffes. 10. Norwich containing Norfolk, Suffolk, and a small part of Cambridge. 11. Hereford, comprehending Worcester and part of Warwick. 12. Hereford, including Hereford and part of Shropshire. 13. Rochester, to which belongs part of Kent. 14. Oxford, including Oxfordshire. 15. Peterborough, containing Northampton and Rutland. 16. Gloucester, comprehending Gloucestershire. 17. Brifton, to which belongs the city of Brifton, part of Gloucester, and the county of Dorset. 18. London, comprehending Glamorgan, Monmouth, Brecknock, and Radnor. 19. St. David's, including Pembroke, Cardigan, and Cermany. 20. St. Andrews, containing the greatest part of Flixt, Denbigh, and Montgomery, and some part of Shropshire. 21. Bangor, to which belong the counties of Anglesey, Caernarvon, Merioneth, and part of Denbigh and Montgomery. The province of York, comprehends—22. Durham, containing Durham and Northumberland. 23. Carlisle, including great part of Cumberland and Westmoreland. 24. Chelten, to which belong Chelmsfield, Lancaster, Richmondshire, which is part of York, together with part of Cumberland and Westmoreland. 25. Isle of Man. The value of these fees is not easily ascertained, as it is very different from that which is stated in the king's books. It is a certain fact, whatever may be the primary occasion of it, that the revenues of the bishoprics are very unequal in value, and that there is also a great inequality in the patronage appertaining to the different fees. Advertising to this circumstance, Dr. Watton, the present bishop of Landaff, addressed a ' Letter to his Grace the Archbishop of Canterbury,' printed in 1783, proposing a scheme for rendering the bishoprics more equal to each other, with respect to both income and patronage, by annulling part of the estates, and part of the preferments, of the
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the richer bishops, as they became vacant to the poorer.

The advantages, resulting from the accomplishment of this object, and recited by the learned prelates, are as follows: The poorer bishops would thus be freed from the necessity of holding ecclesiastical preferments "in commendam" with their bishoprics; a practice, which bears hard upon the rights and expectations of the rest of the clergy; which is disagreeable to the bishops themselves; which exposes them too much, perhaps undeservedly, obloquy; but which certainly had better not fail in the church. The bishops would also thus acquire a greater independence in the house of lords; and the metropolitan would contribute to reduce the influence of the crown in that house. This plan would likewise ensure a longer residence of the bishops in their respective dioceses, as temptations to translations would be thus removed, and prelates would of course become more attached to their particular situations, gain a more intimate acquaintance with their clergy, and serve, by their doctrine and example, to produce the best effect in the conduct both of clergy and laity. See Augmentation.

In Ireland there were 13 bishoprics, and 4 archbishoprics. Under the archbishop of Armagh, the primates, are: the bishops of Meath, Kilmore and Ardagh, Dromore, Claghgl, Raphoe, Down and Connor, and Derry. Under the archbishop of Dublin are Kildare, Foms and Langhlinia, and Offany. Under the archbishop of Cashel are Waterford and Lismore, Limerick, Kilkllnoe, Cork and Ros, and Cloyne. Under the archbishop of Tuam are Elphin, Clonye, and Killala and Achonry. The primacy is estimated at 8,000l. a year, Derry at 7,000l., and the other bishoprics from 4,000l. to 2,000l. The cathedrals have a hierarchy nearly similar; but the metropolitan and bishops are considered by the protestants as merely titular.

The ancient ecclesiastical establishment of Scotland comprised two archbishoprics, those of St. Andrew's and Glasgow, and eleven bishoprics (that of Edinburgh having been only established by Charles L.), which, in the order of antiquity, may thus be enumerated: Galloway (St. Andrew's), Dunkeld, Moray; five founded by David I., Brechin, Dumblanc, Aberdeen, Ross (Glafgow); that of Argyle, or Lismore, was founded about the year 1200, because the bishops of Dunkeld did not speak the Irish tongue; the bishops of Orkney and of the western islands date from an earlier period, while their fees were not subject to the Scotsish crown. But since the resolution in 1688, the ecclesiastical government of Scotland is of the Presbyterian form; and of courts they have no bishoprics.

Bishoprics, as well as archbishoprics, may become void by death, deprivation, and resignation; but a bishop must resign to his metropolitan. See Archibishop.

BIS, Bonaventura, in Biography, an eminent painter and engraver, and a monk, as some say, of the order of St. Francis, was born at Bologna, and became a disciple of Lucia Mussi. His chief excellence consisted in copying in miniature, the pictures of Correggio, Guido, Titian and other masters, which he finished with surpassing beauty and elegance. Many of his works, which are highly valued, are in the duke's gallery at Modena. He also adorned himself by etching some few plates from Parmigianino, Guido, etc. One, probably from his own design, was a "Holy family," painted by Elizabeth and St. John, dated 1631. He died in 1662; but his age is not known. Strutt and Pilkington.

BISIGNANO, in Geography, an inaccessible town of Naples, in the province of Calabria, Ebra, heared on a hill near the river Crati, surrounded by lofty mountains, and defended by a strong fortres. It gives the title of prince to the last remaining branch of the ancient house of San Severian, and is a bishop's see, fullingan of Rossano; distant 16 miles W. S. W. from Rossano, and about 18 miles N. from Cosenza. Lat. 39° 38'. W. long. 168° 21'.

BISK, or Bisket, Biscuit, in Cookery, a rich sort of broth or soup, made of pigeons, chickens, force-meat, mutton, and other ingredients. The word is French, formed, as some think from bicaudaeus because the bisket, consisting of a diversity of ingredients, needs several repeated coctions to bring it to perfection. There is also demi-bisket, made at a low expense, in which only half the ingredients are used; and a bisket of fifty, made of corps, mixed with their roes and bakers.

Bisket, Biscuit, or Biscuit, usually denotes a delicate kind of bread prepared by the confectioners, of fine flour, eggs, sugar, and raisins or orange water; or flour, eggs, and sugar, with self-seeds and citron peel; baked in the oven, in tin or paper moulds. The word comes from the Latin bis, twice, and the French cult, coctus, q. d. bisket. We find divers sorts of such biscuits, as feed-bisket, fruit-bisket, long-bisket, round-bisket, Naples bisket, sponge-bisket, etc.

Bisket, for a sort of bread much dried, to make it keep for the service of the sea. It was formerly baked twice or oftener, and prepared six months before the embarkation. It will hold good a whole year. To preserve sea biscuits from insects, Dr. Hales advises to make the fumes of burning brimstone pass through the caps full of bread. Bisket may be likewise preferred a long time, by keeping it in cases well called, and lined with tin.

The flip-bisket is too hard for some teeth; and in this case, it may be softened by toasting. But rusk is better; for being made of good fermented bread, sliced, and baked a second time, the pieces imbibe the water easily, soften immediately, and digest more kindly, and are therefore more wholesome than the unfermented biscuit. Rusk, says Dr. Franklin, is the true original bisket, so prepared to keep for sea, being twice baked, as its name imports. See Franklin's Maritime Observations, in Amer. Trans. vol. ii. p. 312.

The ancients had their bisket prepared after the like manner, and for the like use as the moderns. The Greeks called it επίτησι, q. d. "bread put twice to the fire." The Romans gave it the name of "panis nautici," or "capta." Playden denominates it "vetus aut nauticus panis tulus atque iternum coctus." By which it appears, that after the first baking, they ground or pounded it down again for a second. In some middle-age writers, it is called "paximis," "paximis," and "paximata." Among the Romans, we also meet with a kind of land-bisket for the camp-service, called, "buccellatum," sometimes, "expeditionalis annum," which was baked much, both to make it lighter for carriage, and less liable to corrupt; the coating being continued till the bread was reduced one-fourth of its former weight.

The procés of biscuit baking for the British navy is as follows: and it is equally simple and ingenious. The meal, and every other article, being supplied with much certainty and simlicity, large lumps of dough, containing merely of flour and water, are mixed up together; and as the quantity is so immense, as to preclude by any common process a possibility of kneading it, a man manages, or as it is termed, rides a machine which is called a horie. This machine is a long roller, apparently about four or five inches in diameter, and about seven or eight feet in length. It has a play to a certain extent, by means of a flaple in the wall, to which certain elastic kind of eye, making the action like the machine by which they cut chalk for horses. The lump of dough being placed exactly in the centre of a raised platform, the
the course of that time bake a sufficient quantity of bread for 16,000 men. The granaries are large, and well constructed; when the wheat is ground, the flour is conveyed into the upper stories of the bake-houses, whence it descends through a trunk in each immediately into the hands of the workmen.

The bake-houses, belonging to the Victualling Office at Deptford, consists of two divisions, and has twelve ovens; each of which bakes twenty sheets daily, Sundays excepted; the quantity of flour used for each sheet is two bushels, or 112 pounds, which baked produce 162 pounds of biscuit. Ten pounds are regularly allowed on each sheet for shrinkage, &c.

The allowance of biscuit in the navy is one pound for each man per day, so that one of the ovens at Deptford furnishes bread daily for 2040 men.

BISLAIN, in Geography, a town of Egypt on the Nile, 3 miles south of Damietta.

BISLEY, anciently called Bisfedge, is a small market town, and a very extensive and populous parish of Gloucestershire, in England. The parish includes an area of 6000 acres, the surface of which is diversified with steep hills and narrow valleys. On the sides of the former are some enclosed arable lands, intermixed with copses; and the latter are mostly kept for meadow pasturage. Bisley, Chalford, and some neighbouring hamlets, are chiefly inhabited by persons engaged in the woollen manufactures; and many fulling and drizzling mills are erected on the river which runs through this parish. A small weekly market is held here on Thursdays, and here are two considerable fairs yearly. The church is a large handsome building, and, being heated on a high hill, is conspicuous for many miles. Here is a small free school, and an endowment for clothing five widows yearly. The canal, which unites the Thames and Severn, passes through this parish; and near the verge of it, at Sapperton, enters a subterraneous tunnel, which is cut through the earth to an extent of two miles and five furlongs. This tunnel is lined with masonry, and arched over at top, with an inverted arch at the bottom, except at those places where the solid rock rendered it unnecessary. The expense of cutting it was about eight guineas per cubic yard; but the plan of cutting the channels of the two great British rivers induced the proprietors to encounter extraordinary expenses and trouble. The connection of the rivers Thames and Severn, by means of this canal, and also with the internal parts of the kingdom, by the Oxford and Coventry canals, which lead to Birmingham, and also to the counties of Stafford, York, Chefler, and even to Walford, forms a line of communication with the capital of the greatest importance, and which has proved of great utility to the manufacturing towns through which it passes. On the 29th of April 1759, the acting engineer, Mr. Clowes, passed through the tunnel for the first time, in a vessel of 30 tons burthen; and the junction was completed, and a vessel passed from the Severn into the Thames, for the first time, on the 19th of November in the same year, in the presence of a large concourse of people, who came to witness and rejoice at the sight. In 1788, their majesty's vessels from Cheltenham, on purpose to view this tunnel, which excited their surprise and admiration, more particularly when they learnt it had been conducted and completed by a private gentleman. The canal is 30 miles and 7 chains in length, in which course the water is raised 241 feet 3 inches, and made to fall 130 feet 6 inches. In the parish are 522 houses, and 4227 inhabitants. Rudge's History of the County of Gloucester. Phillips' History of inland Navigation.

BISLINGUA, double-tongue, in Botany, a name used by many authors for the narrow-leaved rush, or butcher's broom.
BISMARCK, in Geography, a town of Germany, in the circle of Upper Saxony, and Old Mark of Brandenburg; 12 miles west of Stendal.

BISMEOR, or Bismea, a town of Africa in the kingdom of Algiers. 25 miles west of Algiers.

BISMILLAH, in the Mahometan Customs, a solemn form, viz. in the name of the most merciful God, constantly placed at the beginning of their books and writings in general as a peculiar mark or distinguishing characteristic of their religion; it being counted an impious to omit it. The Jews, for the same purpose, make use of the form, “in the name of the Lord,” or “in the name of the great God.”

Bismilah also used among the Arabs, as a word of invitation to eat. An Arab prince will frequently sit down to eat in the street before his own door, and call all that pass, even beggars, by this word, who do not fail to come and sit down to eat with him; for the Arabs are great levelers, and let every body on a footing with themselves.

Bismuth, Bismuthum, Wallerius; Bismuth, or Bismuth, Germ; Bismuth, Fr.; Plumbum cinerum, Antimonium sinterium, tin-glows, of the older chemists.

Bismuth is a brittle metal, of a reddish white colour, and foliated fracture, is fusible at nearly the same temperature with lead, soluble with ease in nitric acid, and precipitable from it in the form of a white oxys by the addition of pure water.

§ 1. Ores of Bismuth.


The colour of this mineral is silver-white, with a white tinge of red, frequently exhibiting an iridescent appearance on its surface. It occurs very rarely in mafs, being generally disseminated, or involving; it is also met with feather-shaped, or reticular, or in lamilla of a rectangular or triangular shape, either solitary, or heaped upon each other. It exhibits a metallic lustre of considerable brilliancy. Its fracture is perfectly foliated, or broad fissated. It is semiductile, and breaks with some difficulty into irregular, somewhat blunt-edged fragments. Sp. grav. according to Kirwan = 9.47.

Native Bismuth is fusible at a very moderate temperature, often by the heat of a common candle; when exposed to the action of the blowpipe on charcoal, it volatilizes in the form of a white vapour, not unfrequently accompanied with an arsenical smell. It dissolves very easily, and with effervescence, in cold nitric acid; and is precipitable in the form of a white powder, on the addition of pure water.

The only two substances, with which native bismuth is liable to be confounded, are the sulphur of bismuth and dendritic silver; the former of these, however, is not soluable with a slight effervescence in cold nitric acid; and the latter may be distinguished by its colour and ductility.

Bismuth is one of the most partially diffused metals hitherto known; and it is chiefly found native, accompanied with kupfernickel, white and grey cobalt, black blende, native silver, and rarely galena. Its gangue is quartz, calcareous spar, or barofolinite; and it has hitherto been found only in veins in primitive mountains.

It is found at Joachimthal, in Bohemia; at Freyberg, Annaberg, &c. in Saxony; in Sweden, Transylvania, and Britain.


The colour of this substance is between lead-grey and tinge; and on the surface it is usually yellowish or iridescent. It is found either lamellar and in mafs, or disseminated, or in small acicular crystals. Its primitive figure, according to Hauty, is that of a quadrangular prism. Its internal lustre is metallic and very brillian; its fracture is broad or narrow striated, or striated like galena. Sp. gr. according to Kirwan, = 6.131. It burns the fingers in a slight degree; and when reduced to powder, is of a glimmering black.

When exposed to the blowpipe, it melts easily, giving out a sulphureous odour and a blue flame, and is almost entirely volatilized before it can be brought to the metallic state. There has been no very accurate analysis made of this ore; but from the experiments of Sage and La Peyrouse it appears to contain about 60 per cent. of bismuth, 36 of sulphur, and a little iron. There is some external resemblance between the lamellar variety of this mineral and galena; but the superior fusibility of the former is an easy and infallible characteristic.

Sulphuret of bismuth is very rare; and, where it occurs, is always accompanying native bismuth. It is found at Joachimthal, in Bohemia; Alkenen and Johann-Georgenflaadt, in Saxony; and at Bultms, near Riddarhytte, in Sweden.


This mineral is of a greenish yellow colour, passing into ash-grey, or straw-colour. It is sometimes found in mafs, but more commonly disseminated or involving. It is opaque, and possesses a slight degree of internal lustre. Its fracture is five-grained, uneven, or earthy. Sp. grav. considerable, but has not yet been accurately ascertained. It is either friable, or of the consistence of chalk, but occasionally gives fire with a blue, or a violet tint of the particles of quartz with which it is mixed.

When exposed to the action of the blowpipe on charcoal, it is very easily reducible to the metallic state. It is fusible in nitric acid without effervescence, and precipitable for the most part by the addition of water.

Oxys of bismuth is an extremely rare mineral. It has hitherto only been found at Schneeburg, in Saxony, accompanying native bismuth; in the Black Forest mines, in Swabia; and at Joachimthal, in Bohemia. It is often confounded with the green earthy iron ore; but may be at once distinguished by its easy reduction before the blowpipe. Emmerling, vol. ii. p. 454. &c. Wiedemann, p. 887. Brochant, v. 2. p. 434. Hauty, v. 4. p. 184. Kirwan, vol. ii. p. 263.

§ 2. Assay and Analysis of Bismuth Ores.

Sulphur and iron are the only substances that have been as yet detected in combination with this metal, as far as can be inferred from very imperfect analyses of the preceding ores. But Klaproth, in his examination of the bismuthic silver ore from Schafburg (Analyt. Ess. vol. i. p. 556.), found it to be a combination of lead, silver iron, copper, and sulphur, with bismuth; and from the experiments of this able chemist is deduced the following general method of analyzing the ores of bismuth.

Having reduced the ore to a tolerably fine powder, pour upon it, in a capacious flask, five times its weight of nitric acid previously diluted with one third of water. The acid will begin to act immediately, without the assistance of heat; nitrous gas will be diffused in great quantity; and the solution will assume a greenish yellow colour. When the acid has taken up as much as it can, or nearly so, pour it off, and digest the undissolved residue in a moderate heat, with equal parts of nitric acid and water, renewing the

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monstrum from time to time, till all the soluble parts of the ore are taken up. Add together the solutions, and red heat them by gentle evaporation to about half their bulk (if any crystals are deposited, add a little pure warm water just sufficient to take them up again); then pour the whole into a large quantity of rain water, at least twenty times the bulk of the solution. The liquor will immediately assume a milky appearance, and, by standing a short time, will deposit a white heavy precipitate (a), which, when carefully lixivated, is pure oxide of bismuth. Add all the liquors together, and concentrate them by evaporation to one half of their bulk; then drop in the strong solution of muriated ammonia, as long as any precipitate takes place; decant the supernatant fluid as accurately as possible, and, without washing the precipitate, digest it for a short time with moderately strong nitric acid; the undiluted part of the precipitate being separated, washed, and dried, is pure muria of silver (b). The nitrous solution is now to be diluted with a large quantity of cold water, and a precipitate of oxide of bismuth (c) will be thrown down. The diluted nitrous solution being mixed with the other liquor, the whole must be evaporated, till a considerable number of crystals are deposited; at this time, the addition of sulphuric acid will occasion a white deposit of sulphat of lead (d). The remainder of the solution is now to be superheated with caustic liquid ammonia, by which the iron will be deposited in the state of brown oxide (e), and the copper will form with the ammonia a blue solution; this being saturated slightly to excess with sulphuric acid, will deposit the copper (f) upon a piece of clean iron. The residue of the ore that was undissolved by nitric acid, being weighed, and exposed to a low red heat, will give it's sulphur (g), the quantity of which may be estimated with considerable accuracy by the loss of weight. It is now finally to be digested with ten times its weight of boiling muriatic acid, by which some oxide of lead will be taken up; and this, by evaporation and the addition of sulphuric acid, may be procured in the state of sulphated lead (h). The residue being washed and dried is the stony gangue of the ore (i).

Hence the ore will be decomposed into:

- Oxide of bismuth (a) and (c),
- Muriated silver (b),
- Sulphated lead (d) and (h),
- Oxide of iron (e),
- Metallic copper (f),
- Sulphur (g),
- Stony matrix (i).

§ 3. Reduction of Bismuth Ores.

The separation of this metal from the sulphuric acid with which it is found united in the mine, and the reduction of it to a marketable state, is perhaps the chiefest of all the metallurgical processes, on account of the readiness with which the ore can be reduced to the metallic state. The following were the methods practised in the time of Agricola (De Re Metallurgica, p. 440.) A round pit, two or three feet wide, was lined with well rammed clay and charcoal, and covered with billet wood, upon which were laid alternate strata of ore and wood. When the pile was thus built to a sufficient height, fire was applied to the top, and the bismuth, as the heat penetrated through the mass, became melted, and trickled down into the hole beneath, where it collected in an irregular mass; being then withdrawn, and broken into pieces, it was remelted in iron or earthen pots, separated from the impurities that floated on its surface, and finally cast into flat cakes, or leaves, for sale. Another method was to divide a large pine tree longitudinally, and cut out the central part of the wood, thus forming it into a gutter; this being placed somewhat inclined, the ore was laid in the upper end, on a bed of chips and small wood, sufficient, when let on fire, to liquify the bismuth, which flowing down, was collected in a hole or vessel placed at the end of the trough.

The selective properties of wood, has, however, put an end to these rude and extravagant methods; and the ores of bismuth are now reduced in a common reverberatory furnace, the bed of which is lined with charcoal, whence the melted metal is removed in iron holes, and cast into masses weighing twenty or thirty pounds, in which state it is brought to market.


Bismuth is a white metal with a reddish yellow tinge; is considerably hard, but brittle, exhibiting a broad foliated fracture; has a bright, almost metallic lustre; and is somewhat fusible, when burnt. Though brittle, it may be compressed very considerably by judicious hammering, and therefore varies greatly in its specific gravity. According to Mufchenbroek, its sp. gr. when fresh melted, is 8.716; but when condensed, is 9.63. Bergman fixes its gravity at 9.67; and other authors make it as high as 9.68, or even 10. The lamine, of which this metal is composed, have but little adhesion to each other; hence the primitive form of its crystals, which is that of a regular octahedron, may very easily be detached by pressure. It is fusible at 460° Fahr., and may be poured into a paper cone without burning it. If, after it has begun to solidify, the fluid part is poured off, a group of crystals is obtained in tubes, or rectangular volutes. When exposed in close vessels to a violent heat, it sublimes and attaches itself to the cooler part of the apparatus in the form of brilliant plates.

§ 5. Oxides of Bismuth.

The combined action of air and moisture upon bismuth, at the usual temperature, is very slight; it becomes covered with a reddish grey superficial tarnish, and afterwards appears to undergo no further change. At a melting heat, it shortly becomes covered with an iridescent film, and by exposing fresh substances to the air, is wholly converted into a yellowish brown oxide, weighing about \( \frac{1}{6} \) more than the original metal. This oxide melts into a yellow glass at a moderate red heat, and soon penetrates through the most compact earthen crucibles, though not quite so easily as glasses of lead does. When bismuth is exposed to a strong heat, with free access of air, it burns with a faint blue flame, and throws up at the same time a copious white oxide, which was formerly called flowers of bismuth; towards the end of the process the oxide acquires somewhat of a yellowish tinge, probably on account of a small portion of sulphur, or other impurities. The glass, or vitreous oxide of bismuth, is a very active flux for earths and the more difficultly fusible oxides; on account, however, of the superior cheapness and efficacy of lead, it is seldom used for this purpose.


1. Concentrated sulphuric acid has no action on bismuth, except when boiling hot; in this state, it is rapidly decomposed, giving out sulphureous acid gas, and reducing the metal to a white pulverulent oxide, by a low red heat the decomposition is complete, that a quantity of actual sulphur is volatilized. The white masses being washed with a little warm water, parts with nearly the whole of its acid, holding a small portion of bismuth in solution; this fluid by careful evaporation, deposits minute soft crystalline needles of sulphat of bismuth, from which, by the mere evaporation of the water, the metal may be separated in the form of white oxide. The sulphated oxide, produced in the first part
part of the process, is remarkably more difficult of reduction than any of the pure oxys of § 5.

2. Sulphureous acid is incapable of attacking metallic bismuth, but readily combines with its oxys, forming a white insoluble sulphite of a sulphurous flavour, redatable into metallic globules before the blowpipe, decomposable with effervescence by sulphuric acid, and when distilled, giving out its acid, a mass of white oxide remaining behind.

3. Nitric acid acts upon bismuth in a remarkably violent manner. If the metal is in powder, and the acid somewhat concentrated, at the instant of their mixture, even without the assistance of heat, a rapid decomposition of the acid takes place, accompanied with the production of nitrous gas, azot, and sometimes of ammonia; and the bismuth is converted into a white oxide. If the acid is previously diluted with an equal weight of water, and the bismuth is added gradually in small pieces, the decomposition goes on more quietly, the metal is dissolved in proportion as it oxidates, and the acid may be made to take up nearly half its weight of bismuth. By cautiously adding to this solution an equal bulk of distilled water (each portion being well mixed with the whole mass by stirring), before the addition of a succeeding portion, a black pulverulent precipitate takes place, which has not yet been analyzed, but has been taken for sulphur or charcoal. If the acid made use of is still more dilute, confining, for example, of four parts of water, and one of nitric acid, the black matter is not dissolved. Nitrat of bismuth, when thus purified, is clear and colourless, and by gentle evaporation crystallizes in the form of flattened rhomboids, or comprised tetrahedral prisms terminated by three yellow pyramids. This salt, when exposed to a dry air, is considerably efflorescent; but in a humid air, becomes covered with a white, somewhat moist coating of oxides of oxygen. When thrown on hot coals, it detonates feebly, giving out faint red sparks, and leaves behind a greenish yellow oxide of difficult reduction. If a crystal of nitrat bismuth is thrown into some pure water, it immediately becomes covered with a white opaque oxide; but the decomposition of this salt is more striking, if a solution of it is made use of. For this purpose, let a jar be nearly filled with clear rain water, and drop into it nitrat bismuth as long as any precipitation takes place, then mix the whole by agitation, and let it stand for an hour to settle. The bottom of the vessel will now be covered with a fine heavy powder of a dazzling white, which, when repeatedly washed and dried, is pure oxide of bismuth, formerly called magistery of bismuth, and well known as a confection under the name of blanc de fard. This preparation, if made with pure nitric acid, and well washed, is of a dead white; but if a little muriatic acid is mixed with the nitric, and the precipitate is washed with a small portion of cold water, it will be in the form of minute glittering scales with a beautiful pearly lustre, and is then called by the French blanc de perles. In both states it is extensively employed, particularly by the French ladies for whitening the skin, but is subject to turn grey, brown, and even black, by any hydrogogenous and sulphurous vapours. This oxide of bismuth does not appear to retain any nitric acid; and its component parts are fixed by Bergman at 77 of metal, and 23 of oxygen; but, by the more accurate experiments of Kilproth, its contents are ascertained to be 81 of metal to 19 of oxygen. Nitrated bismuth is not, however, totally decomposable by water; for the clear fluid, that is separated by filtration from the oxide, may still be made to yield a precipitate by a carbonated alkali, muriatic acid, or muriated ammonia. Kilproth found (Analyt. Eff. vol. i. p. 557), that 1000 grains of bismuth, dissolved in nitric acid, yielded with water 88 grains of oxide, and 35 more were obtained from the dissolved solution, by the action of muriatic acid added in drops as long as any precipitate ensued. This oxide is very easily reduced by fusion in a covered crucible, with a little nitre and tartar.

4. Bismuth in the metallic state is acted upon with difficulty by muriatic acid, even when it is concentrated and affixed by heat. During the digestion, a small quantity of fetid hydrogen gas is given out; and, by slow evaporation, small deliquescent needle-shaped crystals are deposited of muriat of bismuth. This salt, however, may be obtained in much greater quantity, and more easily, by substituting the oxide of bismuth for the pure metal. If the fleshy mats, which remains behind after evaporation to dryness, is diffused in a glass retort, nearly the whole of it comes over at a moderate heat, and concretes into a soft white mass, called formerly butter of bismuth. Butter of bismuth, like butter of antimony, is intensely caustic to the taste, deliquesces in a moist air, and when dropped into water, is decomposed, a fine white oxide being precipitated.

5. Liquid oxy-muriatic acid acts upon metallic bismuth with considerably more energy than muriatic acid does: the metal is oxydized without the deliquescence of hydrogen, and the result is muriat of bismuth. It is probable, that by substituting the oxide of bismuth for the pure metal, oxymuriat of bismuth might be produced; this, however, is not as yet confirmed by experiment. If bismuth, previously reduced to fine powder, is poured into oxymuriatic acid gas, the metal is instantly ignited and oxydized, and falls in a shower of fire to the bottom of the vessel.

6. Tincture of galls, or gallic acid, precipitates bismuth of a greenish colour from its solution, as prussian potash does of a yellowish colour.

7. There is scarcely any thing known concerning the other bismuthic salts. They are formed by digesting the yellow oxide in the various acids that have not been already mentioned, and are for the most part but little soluble in water. The proportions of their ingredients have not been ascertained with any accuracy, nor are they applied to any use.


The fixed alkalies have no effect on metallic bismuth, but unite both in the humid and dry way with its oxide. Ammonia is said to acquire a greenish yellow colour by digestion with the metal when pulverized, and certainly dissolves its oxide in considerable proportion. The action of the earths upon bismuth is unknown, except that fels and oxide of bismuth combine by fusion into a clear greenish yellow glass.

§ 8. Action of the Neutral Salts on Bismuth.

None of the neutral salts in solution appear to exert any affinity on bismuth or its oxide; but, in a dry heat, many of them are decomposed by it.

Nitre, being mixed with pulverized bismuth, and projected into a red hot crucible, is decomposed with a flight denotation; the bismuth becomes oxydized, and then unites in part with the alkaline base of the nitre.

Muriat of soda, according to Pott, is in some degree decomposable by metallic bismuth. This fact, however, is not confirmed by later chemists; and it is probable, that the salt, which Pott made use of, was not free from muriated magnesia, and that the bismuth was partly oxydized.

Muriated ammonia is totally decomposable by oxide of bismuth. On the first impression of the fire, very pure ammoniacal gas is diffused; and by a slow red heat, the muriated bismuth rises in the form of a thick white vapour, which concretes, in the receiver and neck of the retort, into butter of bismuth; if the oxid of bismuth is in very small proportion
§ 9. Bismuth with combustible Bodies.  

If one part of sulphur, and four of bismuth, are triturated together, and afterwards exposed to a full red heat in a covered crucible, a brilliant fluid metallic mass of sulphuret of bismuth is obtained, similar in its properties to the native sulphuret mentioned in § 1. It may be made to crystallize, by allowing it to cool very gradually, and pouring off the fluid part as soon as the surface is crumpled over. The cavity thus formed will be found to be lined with long tetrahedral prisms crossing each other, and occasionally of a deep iridescent blue and red colour, forming groups of exquisite beauty. The sulphuret of bismuth is much less fusible than the pure metal; it parts with nearly the whole of its sulphur by long roasting, and is decomposable by nitric acid, which dissolves the bismuth without touching the sulphur.

Sulphuretted hydrogen converts the white oxyd of bismuth into a black mass, of which neither the properties nor proportions have been ascertained.

Phosphorus has very little affinity for this metal. Pelleter tried in vain by several methods to prepare phosphuret of bismuth. In some of his experiments, the metallic globule, when red hot, gave out a faint lambent flame, but exhibited no other proof of combination with phosphorus. Fat oils, by the affluence of heat, dissolve the oxyd of bismuth, and form with it a thick tenacious phisler.

§ 10. Alloys of Bismuth.

Bismuth appears to increase remarkably the fusibility of all the metallic compounds into which it enters; but it is to be lamented, that we are greatly in want of accurate experiments on this interesting branch of inquiry.

2. Bismuth and Silver. See Silver.
4. Bismuth and Copper. See Copper.
5. Bismuth and lead. Equal parts of these two metals unite easily by simple fusion, forming an alloy of a brilliant white colour, considerably harder than lead, and, though not ductile, more malleable than pure bismuth. By diminishing the proportion of bismuth, the malleability of the mass is increased, without sensibly impairing its fusibility, hardness, and luster.
6. Bismuth and tin. A small quantity of bismuth increases the hardness and brilliancy of tin, without rendering it less ductile; hence the best foils for glass mirrors are made of this alloy, as also are some kinds of pewter.

Bismuth with lead and tin. Fusible metal. Plumbers' folder. The fusibility of the alloys of bismuth is in no instance so remarkable as in that discovered by Newton, and hence commonly called Newton's fusible metal. It is made by melting together eight parts of bismuth, five of lead, and three of tin. The mass is very brittle, and when broken exhibits a porcelainous appearance, with little or no luster; it is fusible as to become liquid when held on a piece of flint paper over a candle, without scourching the paper; and becomes as fluid as quicksilver in boiling water. If the bismuth is reduced to one part, the proportions of lead and tin remaining the same, the alloy is plumbers' folder; and it differs from the preceding in being somewhat less fusible and confiderably malleable.


§ 11. Medical Use of Bismuth.


BISNAGUR, in Geography, an ancient kingdom of Hindooftan, called Nasinaga, from the name of one of its rajahs, or sovereigns, was formerly the most extensive, powerful, and rich monarchy in the Indies, and comprehended almost all the countries in the peninsula south of the 16th parallel, or the whole of the Carnatic and some other kingdoms. Some have distinguished between the kingdoms of Bifnagur and Narfing, but it is not easy to determine, whether they were two successive, or two co-existing kingdoms. It appears, probable, however, that in the 16th century Bifnagur included the greatest part of the peninsula. The inhabitants of this ancient empire, which is said to have continued 3000 years, were Pagans, and denominated Badaguns; and spoke the Tamul, or Damul language, which is the same with the Malabaric; but the Badagun was used at court. According to the Portuguese writers, the kingdom of Charnatak had no sovereign prince till the year 1200, and the first was Boka, a shepherd, who styled himself rau or rajah, that is emperor; which title has descended to his successors. Boka, it is said, in memory of a victory which he obtained over the king of Delhi, built the famous city of Visnagur, corruptly called Bifnagur. The crown continued in his line till it was usurped by Narfing, from whom this kingdom took its name, as it did that of Bifnagur from the city. The king of Bifnagur was a powerful prince about the year 1520; and about the year 1565 the capital was returned to by merchants from all parts, as being the greatest, if not the only mart for diamonds in the east; and its riches were equal to its extent. At this time it was invaded by the king of Visnapour, and other northern princes of the Deccan; and in 1567 the rajah, or king, retired, with his court, first to Penecunda, and at a subsequent period, or about 1597, its excelling sovereign removed to Kandegheheri, or Chadegheheri, an inland city, strong by nature and fortified by art, so as to be deemed impregnable. About the middle of the 17th century, this large monarchy was again invaded and utterly destroyed, by Adel Shah, king of Visnapour, who formed a league with the king of Golconda for this purpose. The unfortunate rajah fled into the mountains, where he remained in 1667. About 2 years after, the kingdom of Bifnagur fell under the power of the Moguls, by the conquest which Aurungzebe made of the kingdoms of Visnapour and Golconda.

BISNAGUR, rather BISNAGUR, sometimes written BEJANAGUR, the capital of the above kingdom, is situated on the south bank of the Tummbu Brdr, and according to M. Bnifty's map, distant about 50 miles S. E. or S. S. E. from Biscapour, Perifits, says that it was founded by Beladeo, king of the Carnatic in 1344, and was then placed in order to guard the northern frontier of his empire. See the preceding article. This city was visited by Cesar Frederick in 1565, and was then a very large city; its circuit, as he says, being 24 miles, and containing within it a number of hills and pagodas. He reckons it 8 days' journey.
BISPINOSUS, a species of Cerambyx (Serracera) that inhabits South America. Thorax unarmed, and slightly tuberculated; wing-cases bidentated; joints of the antennae armed with two spines; and the body tellaceous. Fabricius.

BISPINOSUS, a species of Carabus that inhabits Europe. This is of a black colour, posterior part of the thorax truncated; anterior partly with two spines. Linnaeus. Muf.

BISPINOSUS, a species of Tabanus, found about Gottingen, and described by Fabricius. The colour is brown; abdomen ferruginous, and black at the base, with two spines on the front.

BISQUET. See Bisket.

BISA, in Geography, a town of Servia on the Danube, 16 miles S. S. E. of Orlova.

BISSACRAMENTALES, in Ecclesiastical History, a denomination given by some Roman writers to Protestant, on account of their only holding two sacraments, viz. baptism and the supper.

BISSAGOS, in Geography, a town of Croatia, 16 miles N. E. of Agram.

BISSAGOS, the name of a cluster of islands and islets, lying off the west coast of Africa, between the mouths of the rivers Rio Grande and Cacheo, and between about 16° 30 and 11° 30 N. lat. and 15° 10 and 17° W. long. The principal of these islands, and that which lies nearest the coast is Boolam, or Buhum, which fee. Each of the inhabited islands is governed by a chief, who assumes the title and power of a king. All these petty monarchs are independent, and frequently at war with each other, which they carry on by means of canoes, capable of containing from 25 to 40 men, with their provisions, and also their arms, which are fables, and bows and arrows. The negroes of these islands are tall, strong, and healthy, though they live only on fish, nuts, and palm-oil, and live with rice, millet, and other produce of the earth to the Europeans, than to retain their passion for trinkets and ornaments. They are idolaters, and are said to be savage in their disposition, not only to strangers, but to one another, when they happen to quarrel, which is frequently the case; and if they are disappointed in gratifying their revenge, they will drown, or ferociously stab themselves.

BISSAO, an island on the west coast of Africa, separated from the continent by a channel, which connects two bays of the sea, within the Bisgas islands, between 11° 15 and 11° 39 N. lat. and 15° 11 and 16° 30 W. long. Both the Portuguese and French began to trade at an early period with this island; the former have a fort upon it, and the latter a factory. The Dutch have in vain attempted to obtain a settlement. The island is 35 or 40 miles in circumference, and rises from the sea, of which it has an agreeable prospect, by a safe ascent to an eminence in the centre of the island. Its surface is hilly, and the lands are separated by beautiful and fertile vales, which are watered by small rivulets. The whole, a few groves of palm-trees excepted, is in a state of cultivation, and produces, besides oranges, mangoes, and bananas, and other fruits afforded by the warm climates, wheat and unice, which grow luxuriantly, and resemble, by the size to which the items rise, reeds or lantoons. Their cattle are likewise of an extraordinary size; and are amply supplied with both milk and wine. The importation of wine is prohibited, and the food does not find the rearing of horses. The inhabitants, who are in a state of almost perpetual content with those of the neighbouring islands and continent, live in cottages differed over the island, which bears no trace of a town, except where the French
French and Portuguese have established themselves. The
drews of the married women consist of a cotton girdle, and
bracelets of glass, coral, and copper; but the virgins are
altogether naked; and those of high quality mark their
bodies with lusious figures of snakes and other reptiles.
The princes of the island is only distinguished from other
females by the elegance of these paintings, and the richness
of her bracelets. The drews of the men of all ranks is merely
a skin fixed before and behind to their girdle. One figural
ornament is a large iron ring, upon which they ring changes
with a piece of iron, so as to convey as freely with their
cabinets as if they used the most polished language. This
artificial language is used only by persons of rank and
fashion. All the Biassos are idolaters, but their system of
religion is very confused and unintelligible. Besides their
chief idol, called “China,” every one creates a divinity
according to his own fancy; trees are held sacred by them,
and, if they do not adore them as gods, they worship them
as the residence of some divinity. Their government is
despotic, the will of the emperor being the law to his people;
at his death all his wives and slaves are sacrificed and
buried near his maver, in order to attend him in the
other world. Although they are at almost perpetual war
with some of their neighbours, they have among themselves
no civil discord. Before the emperor resolves to invade any
adjacent territories, he orders the “bonbalon” to be
founded, which is the general signal to arms, on which all
persons in the pay of government assemble at a fixed place,
and embark on board their canoes, each of which carries
about thirty men, and the whole fleet consists of about 30
canoes. Before the fleet sails, they offer sacrifices in great
number to their gods, which are made of wood, and the
favourable answer of the priests, when they consult these
deities, ensures their success. When they attack any towns
or villages, they carry off the inhabitants, and every article
of value, and divide the booty between the emperor and
those that have been engaged. The slaves are sold to the
Europeans, except such as are of quality or fortune, who are
removed to their friends on condition of their finding a
number of slaves in their room. The emperor is said to
allow free commercial intercourse with all strangers. The
Portuguese demolished their fort on the island in 1703. See
Balontes, Bissagos, and Bulam.

*BISSECTION, in Geometry, the division of any quantity
into two equal parts, otherwise called bipartition, which see.
See also Division, &c.

*BISSENDORF, in Geography, a town of Germany, in
the circle of Weilphalia, and bishopric of Osnabruck, 5
miles S. E. of Osnabruck.

*BISSENPOUR, a small district of Bengal in the East
Indies, which is governed by a Bramin family of the tribe
of Rajpoots, and which has uniformly preserved its
independence. In this district, it is said, the purity and equity
of the political system of the Indians are found unadul-
terated. By the singular situation of this country, its
inhabitants have been enabled to maintain their primitive
happiness, and the gentlemen of their character; and they have
been secured from the danger of being conquered, or of im-
creasing their hands in the blood of their fellow-creatures.
Nature has surrounded them with water, and they only need
to open the sluices of their rivers in order to inundate the
whole country. The armies that have been lent to subdue
them have been so frequently drowned, that the plan of en-
slaving them has been laid aside; and the projectors have
thought proper to content themselves with an appearance of
submission. In Bissenpour, liberty and property are sacred;
obduracy is unknown; and every stranger, who enters this ter-
ritory is under the protection of the laws, which provide
for his security. The guides, to whose conduct he is
committed, become responsible for his person and effects; while
he remains, he is maintained and conveyed with his mer-
chandise at the expense of the state, unless he expresses his
desire to stay longer than three days in the same place; and
should this be the case, he is obliged to live at his own
cost. In this state it is said, probity and honesty are so
prevalent, that if any one find a purse, or any other article
of value, he hangs it upon the first tree he finds, and informs
the nearest guard, who gives notice of it to the public by
beat of drum. Out of about 350,000 annually received
at an average by the government, without inquiry to agri-
culture or trade, what is not wanted to defray the unavoid-
able expenses of the state, is hid out in improvements. The
rapids is enabled to engage in these liberal employments, as
he pays the Mogul’s only such tribute, and at such times, as
he thinks proper. Raynal’s Hist. Settl. East and West Ind.

*BISSENPRAGA, a town of Afa in the country of
Siangur, situated near the base of a mountain, on which
stands the famous temple of Buddrennath. It is a place of
some importance, as being the residence of the priests and
principal Hindoos of Buddrennath. Here they hold their
durbahs, exercise their laws and the duties of their religion,
in the greatest state of security from foreign intruders, and
can at any time seclude themselves from the rest of the
world, by a removal at Bissenprag another river, proceeding
from the eastward as large as itself, called “Dood Gangy,”
or the Milk river, and also “Dhoulee.” Near its junction
with the Alukundra, it runs between two villages, called
“Gurra” and “Nitty.” The town consists of about 800
houses, and is a place of some trade; the inhabitants are all

*BISSET, CHARLES, in Biography, studied medicine
several years at Edinburgh, as he informs us in his Essay
on the Medical Constitution of Great Britain, published in 1752,
and was then promoted to be second surgeon to the hospital
in Jamaica, where he continued from 1740 to 1745, when
he returned to England, and purchasing a commission in the
army, he served as lieutenant and engineer in Flanders until
the peace in 1748. He now refumed the practice of sur-
gery, and settled at Skelton in Cleveland, Yorkshire, and
soon after published “A Treatise on the Scurry,” 1755,
8vo. He had before, viz. in 1751, published “An Essay
on the Theory and Construction of Fortifications.” In
1765 he obtained a diploma from the university of St.
Andrew’s, constituting him doctor in medicine. He died at
Knayton near Thirsk, in May 1791, in the 75th year of his

*BISSEXUALIS, or Bissetualis ells, an ancient measure
or veillet, containing twelve ounces, or two Sex-
taries.

*BISSEXILE, or Leap-Year, in Chronology, a year
constituting of 366 days, happening once each four years,
by reason of the addition of a day in the month of
February, to recover the six hours which the sun spends in its
course each year, beyond the 355 days ordinarily allowed
for it.

The day thus added, is also called bissextile; Caesar
having appointed it to be introduced by reckoning the 24th
of February twice; and as this day, in the old account, was
the same as the fifth of the calend of March, which had
been long celebrated among the Romans on account of the
expulsion of Tarquin, it was called "his sextas calendar
Martii;"
Martii; and from hence we have derived the name biffex-
tile.

By the statute de anno biffextile, 21 Hen. III. to prevent
misunderstandings, the intercalary day, and that next before
it, are to be accounted as one day.

The astronomers concerned in reforming the calendar, by
order of pope Gregory XIII. in 1582, observing, that the
biffextile in four years added 44 minutes more than the
sun spent in returning to the same point of the zodiac; and
computing that these supernumerary minutes 133 years
would form a day; to prevent any changes being thus in-
sensibly introduced into the seasons, directed, that, in the
course of 400 years, there should be three biffessexile re-
trenched; so that every centennial year, which, according
to the Julian account, is biffextile, or leap-year, is a common
year in the Gregorian account, unless the number of cen-
turies can be divided by 4, without a remainder. Thus
1600 and 2000 are biffextile; but 1700, 1800, and 1900

The Gregorian computation was received in most foreign
countries ever since the reforming of the calendar; and by
act of parliament, passed anno 1751, it commenced in all the
dominions under the crown of Great Britain, in the year
following, ordering that the natural day following the
second of September, should be accounted the fourteenth;
omitting the intermediate eleven days of the common calen-
dar. See Calendar.

BISINGEN, in Geography, a town of Germany, in
the circle of Swabia, and county of Pattingen Wallerlin,
4 miles S.S.W. of Haarburg.

BISSOOLY, a principal fort of Hindooftan, lying at or
near the entrance of the hills, 42 coffes S.E. from Jummoor.
Major Remell places it in his map on the north bank of the
Ravnees, 6 or 7 coffes above Kulamore, or 413 above La-
hore, or, in other words, about 39 geographical miles
E. 35° N. from Lahore. N. Lat. 32 32. E. Long. 75.

BISNOWIE, a town of Hindooftan, in the country of
Onde, and circar of Rohilcum, 25 miles west of Bereely,
and 85 E. S. E. of Delhi.

BISTAM, a small city of Perfia, in the province of
Dashe, on the north of the Great Salt Delert, rarely
visited by travellers. N. Lat. 35 30'. E. Long. 54 32'.

BISTER, a town of Switzerland, in the Upper Vallais,
not far bank of the Rhone. N. Lat. 46 19'. E.
long. 7° 52'.

BISTI, a species of Persief money, valued at sixteen
or eighteen French deniers. Some represent the biffi as an
ancient silver coin; others, as Chardin, make it only a
money of account, and call it dinar biffi.

BISTONES, in Ancient Geography, the name of a people
who inhabited that part of Thrace, which was bounded on
the north by mount Rhodope, on the east by the Hebrus,
and on the west by the Nesseus, and on the south by the Aeg-
ian sea. Its capital was Tinda. These people were subdued
first by the Macedonians, and at length by the Romans.
Xerxes, according to Herodotus, traversed their country in
marching against Greece. Hence "Biltonius tyrannus" is
used by Lucan to denote Diodemes, king of Thrace, who
fed his horses with human flesh; and "Biltonius turbo;" ex-
pressing a wind blowing from Thrace.

BISTONIS, a lake on the southern coast of Thrace,
N. E. of Abdera.

BISTORT, or Snakeweed, in Botany. See Poly-
comum.

BISTORY, or Bistoury, in Surgery, is a cutting in-
strument, formed like a small knife. It may be either
straight or curved, double-edged or with a single edge, harp
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pointed, round pointed, or with a probe point, &c. Some-
times it is made to fit within a handle; at other times the
blade is fixed and immovable. For particular purposes,
the blade is concealed, so as to project only at the mo-
ment when the instrument is used by the surgeon on
which account it is called by the French bistouri chef.
On some occasions, it is found convenient to employ a
director, or a cane, at the same time we introduce
the bissory : for example, when it is intended to pass
the cutting instrument along a narrow fissure, or under the
purse up to a certain spot before we make any incision,
(see the article's Pyromosis, and Sirius); but whenever
there is room for the introduction of a fore-finger, that mode
is preferred by modern surgeons as a guide to the bissory,
being much more convenient and secure than any artificial
director. The precise form of a bistouri must be regulated
according to the nature of the operation required, and the
end to be obtained. See the article Scalpel, and consult
the engravings of chirurgical instruments attached to this
Cyclopedia.

BISTRA, in Geography, a town of Bohemia, in the circle
of Chrudim, 6 miles S. S. E. of Politzka.

BISTRALIA, a town of Russian Tartary, on the west
side of the Donetz, 70 miles N. N. E. of Azof—also, a
river of Russian Tartary, which runs into the Donetz, 64
miles N. E. of Azof.

BISTRE, among Painters, a composition made of
the most glossy and high-well burnet foot, pulverized, and
pasted through a fine sieve, then baked in a little gum-water,
and made into cakes; or it is the burnt oil, extracted
from the foot of wood. It is a brown transparent colour,
and has much the same effect in water-painting, where
alone it is used, as brown pink in oil.

The belt is prepared from the foot of dry beech wood,
by grinding it with urine or water, into a smooth paste,
and then diluting it with more water; after the groffer sub-
stance has subided, the liquor is poured off into another
vessel, and left to settle three or four days; the fine matter
that remains is biffre.

That the biffre of our colour shops has been prepared by
a procid of this kind, and not, as some have fatypech'd, by
evaporating the infusion of foot to an extract, may be pre-
fixed, says Dr. Lewis (Com. Epit. Phil. Techn. p. 345),
both from its appearance and its qualities. He observes,
that different parcels of biffre differ considerably in their
colour, on account, probably, of the different qualities of
the roots from which they were made.

In the Handmaid to the Arts, vol. i. p. 125, we have
the following recipe for preparing it. Put the foot of dry
wood (of beech when it can be procured) into water, in the
proportion of 2 pounds, to a gallon, and boil them half an
hour. Then, after the fluid has stood some time to settle,
but while yet hot, pour off the clearer part from the earthly
sediment at the bottom; and if on standing longer it form
another earthly sediment, repeat the same method; but this
should be done only while the fluid remains hot. Evaporate
the fluid to dryness; and what remains will be good boilre, if
the foot was of the proper kind. That which is good is
transparent, when moistened with water, and of a warm,
dark brown colour.

Instead of this, some use the hatches of a pen, with a
little Indian ink, others red chalk, others black lead, &c.
See Washing.

BISTRANIA, in Geography, a town of Russian
Tartary, on the south side of the Don, 100 miles E. N.
E. of Azof.

BISTRIATA, in Entomology, a species of Cicada (Di-
S.
that inhabits France. This is yellow, with two transverse bands of brown. Geoffroy.

BISTRICZ, or BISTITZ, in Geography, a town of Transylvania, and capital of a county, to which it gives name, situate on the river Bistriz, which runs into the Simon, 4 miles SW. of Keszova. The town is 42 miles N.N.E. of Clauflenburg, and 256 E. of Vienna. N. lat. 4° 24′ E. long. 25° 3′.

BISTRIGALIS, in Entomology, a species of PHILENA (Pyralis), with cirrurous wings, and two farrigulous streaks, and a black dot. Inhabiteth Europe. Linnaeus.

BITRIGARIA, a species of PHILENA (Geometra), with cirrurous wings, undulated, with two linear streaks.

A native of Europe. Linn. &c.

BISTRIGATA, a species of PHILENA (Geometra). It is griseous, with two white streaks. Inhabiteth Europe.

BITRITZ, in Geography, a town of European Turkey, in Moldavia, on a river of the same name, which runs into the Siret, 6 miles S.E. of Baken. The town is 20 miles S.W. of Jaffa. Also, a town of Walachia, 16 miles W.S.W. of Kinnik.

BISTRIZ, a town of Moravia, in the circle of Bruna, 6 miles W.S.W. of Ely.

BISTROFF, a town of France, in the department of the Oise, and chief place of a canton in the district of Morehang, 4 miles N.N.E. of Morehang.

BISTRITZ, a town of Bohemia, in the circle of Konigigratz, 10 miles from Gmitchin.

BISUGA, a river of Russian Tartary, which runs into the sea of Azof, 48 miles S.W. of Eiskoi.

BISULCATUS, in Entomology, a species of CURCULIO that inhabits Italy. This is black, with a cirrurous border all round, and two furrows on the beak. Fabricius.

BISULCUS, a species of ICHEUMON, of a black colour, with two impressed lines before; legs rufous; sting short. Lim. Mull. Lefk.

BIT, or BITS for Horses, in the Manage, are pieces of iron of various figure and construction which, being placed in the horse's mouth, serve, by the assistance of the reins, to restrain or guide his motions.

The term BITS, or bits, is confidered by some as originating from the horse's biting or chewing them between the teeth when placed in his mouth; in the French language is used a term also of similar signification, les mords, which would seem to corroborate the above etymology of it:—another however, equally natural, presumes itself in the common word bit, or bits, that is pieces of iron; this apparatus being always made of one or more pieces of this metal.

The art of bitting horses may be said to consist in furnishing the mouth with the most proper mouth-pieces, &c. for obtaining from them an obedience to the will of the rider, and effecting a due performance of all the movements and restraints which may be desired, or at least which are dependent upon the operation of the reins. Rightly understand, and well administered, this art affords the power of communicating to the horse support and confidence, with greater ease and security to the rider. The misapplication of its rules, on the contrary, or an insattention to them, where the mouth is not totally insensible, will produce painful sensations to the horse, with disgust and rebellion, and to the rider uneasiness and perhaps danger.

It is to be lamented that the preposterous opinions of the uninformed have been too much the guide of the public in their estimation and choice of the proper bits for horses, as also in too many other things respecting these useful animals, tending often to accumulate unnecessary suffering and misery upon them. The writers on this subject are few and unsatisfactory; we shall, however, except Mr. Berenger, whose work is a noble effort to emancipate this branch of science from barbarity and ignorance; and from him we shall take occasion to make some extracts in the sequel of this article. Here it will be proper to observe, that this author, by the term bit, has designated the curved bit only, but we have ventured, for the sake of puritying a more connected view of the subject, to include in this term any piece or pieces of metal placed in the horse's mouth, for the purposes of guidance or restraint.

In our account of the different kinds of bits, and their effects, we shall begin, for the sake of order, with the description of a bit of the most easy and simple conformation possible, and then proceed to the most complicated.

A short iron rod, made rather wider than the mouth of the horse, and provided with a hook or ring at each extremity for fastening the reins to, affords us an instance perhaps of the greatest possible simplicity in the construction of a bit; and such a one only slightly curved forwards, to allow more liberty for the tongue, is at present in general use for the heavier kind of draft horses, the bearing rein being usually attached to it, passing over the hames of the collar.

A similar rod to the former, broken in two pieces, and connected by a joint in the middle, is the next in point of simplicity, and is in common use for horses of light draft, as in horse employed for the curricule, coach, &c. and is attached by the bearing rein to the hook of the sadderle, and this kind of bit is mostly termed with us a bridon.

The next in point of further complication of parts, and which scarcely can be said to differ from the former, is the common snaffle. This is provided with two crofs pieces, which rest against the lips or sides of the mouth; for as the snaffle is intended for the saddle horse, and the reins go to the hands, to the crofs pieces are useful in preventing the bits from being drawn through the mouth, which precaution is not so necessary where the bits are affixed to the bearing rein. The bridon we may observe, is also made in general smaller than the snaffle, as well as without crofs pieces.

The distinction, however, between a bridon and snaffle is insignificant and of little consequence; for on all occasions crofs pieces are the most convenient; and it will be easily seen that the bridon is merely an imperfect snaffle, poising no peculiar characters which can form a real distinction.

The term alfo, when confined to this object is misapplied: for the French, from whom we have borrowed it, by le bridon understand the snaffle and its rein, in opposition to le brie, by which they denote the curved bit and reins.

In war, and on other occasions, the bridon was used as a letter briedle, or bridle of reserve, in case of the failure of the former from any accident; and hence the origin of its name.

The number of parts of which the mouth-piece of the snaffle is composed, may be increased to any extent, as it may be made with one, two, or several joints; but as it is evident these additions will not essentially alter its properties or effects, it would be useless to pursue a distinct consideration of them.

But the condition of the snaffle admits of being further altered and changed by the variation of its figure, its substance, and its surface, as to acquire new properties and effects which will require particular attention; its gentleness or rigour will depend almost wholly on these conditions. A mouth-piece made of two entirely straight pieces will be more severe than when there are somewhat curved, as the curved bit is more apt to embrace and incline the lips between it and the bars than the
the straight one. A thin and slender bit or snaffle, it will be easily perceived, will act with more severity and sharpness upon the bars than a thick and obtuse one; the former, therefore, or the sharp bit, is employed more particularly for restraining such horses as are hard-mouthed, and too eager, while the latter is used for such as have a proper feeling of the bars, and especially for breaking in young colts.

The surface may be varied as to roughness or smoothness, producing also different effects. To give the greatest ease possible, a large and highly polished bit is necessary. This is sometimes provided with moveable rollers on the axis of the bit, which, turning with every movement of the reins, diminish the friction of the bits and render them less irritating. These rollers, however, in reality can have but little effect in the snaffle, though of pleasing effect in the mouth-piece of the curb; for this reason, that the snaffle being jointed in the middle, is drawn by the reins to a sharp angle in the mouth, so that these rollers are presented to the bars in an oblique direction, under which position it will be obvious they can have very little or no motion, but, on the contrary, they will tend to render the bits more severe by their irregularity; so that a well polished snaffle is in fact preferable to one of these: with rollers of the ordinary construction.

On the other hand, to give the greatest degree of severity to the mouth-piece of the snaffle, it is twisted while hot into a spiral form, and is made to present by this means a sharp, rough, and unequal surface to the jaw, being capable, according to the degree of sharpness to which the edges are wrought, of punishing the bars and lips with greater or less severity. The different degrees of punishment which this kind of bit is capable of inflicting, will perhaps be found sufficient for all the purposes of correction, where restraints may properly be had to actual force and punishment. For it should be always kept in view, that gentle means will produce a good mouth; while harshness and too great severity will tend to destroy it altogether.

Thus far the ancients of the most remote ages of the world, almost as far back as any history extends, were well acquainted with the use of bits. Xenophon, more than four hundred years before Christ, had described similar bits as being in common use in his time among the Greek states. He speaks of a smooth and a sharp kind of bit, the latter, if more severity was requisite, to be armed with points or teeth. In its use, however, he enjoins the greatest tenderness, and observes "that when you would wish to slacken the pace of an eager horse, which hurries on too fast, and to pacify his fury, so as to make him go more temperately, or even oblige him to stop, you should not attempt to do it at once, and with violence, but artfully, and by degrees, gently pulling him in, then yielding the bridle, and playing with his mouth with a light touch, as if you intended rather to win his consent than force his obedience." Chap. 9, 10.

Beyond the changes above described, the snaffle itself does not appear to admit of any alterations worthy of notice. It may, however, be just observed, that some horsemen add a chain to it, extending from check to check, which rolling loosely on the tongue produces irritation and flavors and, as they imagine, freshens the mouth. Such a bit is known by the name of the Rockingham snaffle.

The reins, however, must be remarked, admit of some alterations in their disposition, which will influence the effects of the bit on the mouth; as whether they are carried higher or lower. At this present time there is a practice more especially in horses of light draft, as in those for carriage, curricles, and chairs, &c. to distort and alter the bearing reins from their natural direction, and to dispose them more perpendicularly and in a line with the head; so that instead of pulling straight from the mouth to the horse's back, they are directed up the sides of the face, as high nearly as the jaw, gland, or bale of the ear, where they are passed though a ring hanging from the head stall, and from thence to the back of the faddle. The appearance is ornamental and elegant, and the reins to direct are considered as more forcibly elevating the head than if they proceeded to the back in the usual direction.

As the disposition of the reins, so the figure of the bits themselves, and the ornamental appendages attached to them, admit of almost endless variety. The manufacturers of these articles, availing themselves of this license, render their bits more lucrative by as frequent changes as possible. These are successively introduced as fashionable novelties, till again for novelty they return to the simplest practice; and this takes place without any alteration in the principal circumstances of their construction, properties, or use.

The next kind of bits in use for horses is the curved bit; which, as it is an instrument of much greater complication of parts than the snaffle, so it appears to have been of comparatively recent date.

In some of the sculptured equestrian figures of the ancients something like the branches of the curb may be found; but in no instance does there appear any thing resembling the chain, which is absolutely necessary to its effect. Their writings also appear to be silent on this subject. It was probably the invention of Italy or France, which for some centuries past have taken the lead of the other nations of Europe in teaching the arts of the manage. It was first introduced into the English army by a proclamation made in the third year of king Charles I., since which time it has got into universal use for the army, the field, and the road, so that no horseman deems himself perfectly equipped without it. Most of those writers who have treated of it in the fall, and in the century preceding that, and who wrote probably soon after the commencement of its use, have been very profuse in their various proposals for the structure of it, especially in rendering it more complicated, fierce, and cruel; though it is probable their clumsy figures and representations were never imitated in actual practice. They appear to have been much satisfied with their new invention, imagining it a pure means of reducing horses to immediate obedience, in spite of every obstacle; and true it is, it can punish with extreme severity: but is such a measure most likely to create vice, or to overcome it? Indeed, according to the opinion of one of the ablest writers that has ever considered this subject, and whose opinion we shall take an opportunity of quoting more fully hereafter, little or nothing has been really gained by its adoption; on the contrary, the snaffle polishes more simplicity, power, and perfection.

Stripped of all unnecessary trappings, this instrument consists of the following essential parts: a mouth-piece with two forked branches, or inflexible rods of iron, firmly fixed to the former, and a chain passing from side to side, behind the chin, including the jaw between two eyes or rings at the upper extremity of these branches, fixed to the head stall, and to lay it in the mouth; two other rings at the lower extremity of the above branches receive the reins, passing to the hand, or sometimes in draft horses to the hook of the faddle, as a bearing ree. These are all the parts really necessary to constitute the curb.

The bits thus formed being placed in the mouth, and the chain passed round the lower jaw, the branches, it will be

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readily seen, become powerful levers when drawn backwards, acting upon the mouth-piece as a centre, and squeezing, by means of the chain, whatever interposes between it and the mouth-piece, with a force equal to the length of lever afforded by the lower branch.

This force, it will be perceived, is influenced and regulated not only by the length of the lever below the mouth-piece, but also by the greater or leffer distance at which the chain is placed from it. The chain is usually fixed to the eye of the cheeks-piece, where the head-hall is fastened; if, therefore, this part is very long, it is evident it must moderate or counteract the power and effect of the lower end of the branch, and render it less effective by bringing the centre of motion nearer to the middle of the lever.

It appears manifest, from the construction of this instrument, that its whole force is exerted upon the jaw itself, and that it has power to pinch the bars with cruel violence, even to the fracture of the bone, and this with very powerful branches has sometimes happened. It can also crush and bruise, and totally destroy the tender covering of the inside of the mouth, and the skin beneath the jaw.

From considering its mode of operating, it might reasonably be doubted whether it does in reality flop the horse by its power and opposed force, as is generally conceived at present, or rather by the severity of the pain it inflicts; as should the horse arm himself against this, it is totally insufficient to arrest his course; of which influences occur in runaway horses every day. And we shall venture to suggest, though contrary to the general opinion, that the snaffle, even in this respect, if the mouth has not been previously hardened and spoiled by the use of the curb, is the most powerful instrument of the two.

The mouth-piece of the curb is usually provided with an upset or arch in the middle of it, as it would, if perfectly straight, rest on the tongue, and occasion an unpleasant restraint. This passage for the tongue is often made so narrow and small by the bit makers, that one should apprehend they scarcely had a right idea of its use. From the circumstance of its allowing a passage for the tongue, it has been called by some, the liberty; and, for the same reason, by others, the porte: hence we have the porte-mouth bit, vulgarly called among the bit makers and grooms the Portsmouth bit: and by a supposed counter expression to this term, we probably get the Weymouth-bit.

In draft horses, especially for the coach, it is a frequent custom to have affixed to the upper part of the upset small chains or polished drops of iron, which hanging loose in the mouth, and falling on the tongue, occasion the horse to champ the bits, and create a copious flow of saliva, so as to slaver the lips with its white froth; and when this happens, it is considered by some a good sign of health and gaiety, and that the horse is well bitten; for, if the bits are disagreeable to him, he never plays with them, or exhibits any froth, say they. These small appendages are termed by the French les chainettes, and by the English players.

It is farther to be observed, respecting the mouth-piece of the curb, that the straight part which rests upon the bars of the jaw, is termed by the French le canon, and by the old English writers the jeive; and though a highly convenient and useful word, it is to be regretted it is at present out of use; the French term, which is not so expressive, having superseded it. This part should be well polished, and may be made of any propel figure, as that of a cylinder, cone, oval, globular, pear-shaped, &c.

It is obvious that the effect of the curb, as far as it refers to the bars, will be correspondent to the thickness or thinness, smoothness or roughness, of this part; the larger and broader it is, the more surface it covers; and thus the pleasure, by being distributed over more points, becomes less felt. This enlargement, however, of the canon or jeive should not be carried to an excess, by making it too heavy, or filling the horse's mouth with more iron than it can conveniently receive, and thus create pain, instead of greater ease.

To render these irons less irritating to the mouth, and to avoid their friction upon the bars, the jeives are provided with loose, movable rollers of well polished iron, which readily turning on the axis of the bits, very considerably diminish their severity. These moveable pieces are also particularly useful in preventing the horse from catching and holding the bit in his teeth; as the curb, under these circumstances, can full move and act with the same freedom as before.

The jeives are sometimes composed of three or four flatth knobs, united by a joint to each other, and with a joint to the upset, which is intended to render it very fever; it is obvious, however, that such an alteration must bring it nearer to the condition of the snaffle; the knobs, however, if they can be drawn transversely across the bars, might produce considerable irritation, but not so much as they would do if not jointed. This bit is not frequently used, and it is called with us the Hessian-bit.

To the curb is often fixed a ring opposite the mouth-piece, which, as it is directly in line with the axis of the bit, has no other effect when the reins are affixed to it, than a snaffle would have provided with a familiar mouth-piece. This is termed putting the reins to the cheek, and as for horses of light draft, whose mouths are not ruined, it is by much the best, as the mouth is less annoyed, and the horse obeys with more alacrity the guidance of the hand from this point, than from the extremity of the branches, which are particularly ill calculated for this purpose: this kind of construction is generally distinguished by the name of the Pelham bit.

In the older English writers, as well as those on the continent, on the subject of bits, we find an appendage described, which is not at all, at present, in use; and as it enters the mouth with the mouth-piece, it may, with propriety, be described along with it. It consisted of a chain extending from branch to branch of the bouquet, or cheek piece, being placed rather above the mouth-piece, and parallel to it, and was stretched across perfectly straight and tight. This part was called the water-chain, and by the French Trench-file: its use is not very evident. Mr. Berenger takes notice of it, and observes "that it might be useful to horses that are apt to drink or swallow the bits, as the expression is, or burry it so deep in their mouths, as to hinder it from having a due and just effect"; from its being laid aside so generally, we presume it has at least been thought useless.

It is a common belief with the grooms, that a great power refides in the upset of the mouth-piece, and that the bits are more powerful as this is longer or shorter; nothing, however, can be more fallacious than this reasoning. In the works of Laurence Reef, also a French writer, we find, in connexion with this idea, a curb, with an upset of unusual length, being defined to correct the vice "d'un Roussin qui a la bouche d'une diable?" it will be obvious, however, on a moment's reflection, that this part, from being made very lofty, and coming forcibly against the palate, would compel the horse to open his mouth, when it would cease farther to act in any way; with more reason, the same writer proposes, on the other hand, "pour donner
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grand plaintiffs, to have a bit constructed with a low upset, and insufficiently wide, with large, conical, smooth jewes for the bars.

Of the chain. The chain is the part most essentially necessary to give effect to all the other parts of the curb, and may be placed, as we have already noticed, at any given distance above the mouth-piece; its operation being more powerful, as this distance is exceeded by the length of the branches. This position, though true as a general principle of reasoning, appears to be subject to the operation of other causes in actual practice, which it will be necessary to consider; for, in direct contradiction to this is the assertion of Mr. Berenger, who appears to be almost the only writer who has truly investigated the merits of this particular object. He observes, in regard to this, that the nearer the chain, and the longer the branches, the fatter and more indulgent its operation. This, on a first view, would appear to be in direct variance with the rules above laid down, and irreconcilable to the well known laws of the operation of the lever, and even at variance with his own preceding affirmations; when, however, we remember the experience and practical knowledge of him who affords it, it deferves a more particular consideration; let us first admit the truth of the position, as it seems founded on the sure tenet of actual experience, and then we should venture the following as the most natural explanation of it.

In proportion as the branches are longer, the more extensive is the circuit their extremities perform in their operation; and therefore, the hand that guides them must pass through a greater space to produce the same effect: and now if the chain be placed very near to, or upon the out-side of the mouth-piece, and be applied not very tight about the chin, yet, in reality, though there would be an apparent increase of power by the length of the branches, they would have little or no effect, as they would arrive at the utmost extent to which they can be drawn, before the chain would begin to pinch. On this account, the most lively effects would be produced by the chain having more sweep and extent of action, and by the branches being not quite fo long, as great length also adds something to their flexibility, though not to a degree to be worth taking into the account. Still, however, the branches must ever obey the common laws of the lever, acting with force proportioned to their length; while shorter branches act with greater quickness, and are more lively in their impression.

The chain is fastened on one side to the eye of the baquet, where the head-flall is fastened; on the other, to a hook hanging from the same part. This chain, as it is at present used, is composed of iron links or rings, so bent or indented, as to form, when put together, one uniform nearly flat surface; and these links, by twirling or untwirling, may be made to present a surface with any degree of roughness to the chin.

When great tenderness is required, this chain may be covered with leather or cloth; or where a full greater delicacy is desirable, the curb may be made wholly of leather, without any chain.

The larger and thicker the rings are, provided they are smooth and well polished, the easier the effect of the chain. In old English, this chain was called the kirble; and hence, by contraction, kir; and finally, by an easy transition of the ki into ce, we apprehend that the modern appellation of this instrument is obtained.

Of the branches. The proportion which the check part bears to the lower extremity of the branches, or rather the position of the eye, to which the chain is fixed, determines the degree of power of the bit upon the principle before advanced, that is, if the chain is fixed to the upper extremity of it as it usually is to the transverse opening or eye of the head-flall.

For the elementary view we are taking of the construction of the bits, it has been only considered as a straight, plain lever of indeterminate length; it is, however, in practice, often used, as in the army, it is used by the famous Z, with which it is incised to be rendered more powerful, as well as ornamental; at other times the branch of the bit, with a view of increasing its force, is carried forward with a sharp elbow, giving nearly the figure of the letter Z; while by others, with more reason, to prevent the horse from catching the bit in his mouth, it is made with an arch, or semicircle, in the middle of the branch, like the letter C, turned backwards for the same purpose; still, however, in fact, whether bent into that or any other space, it is the length of the lever, and its strength, which alone give the power; it is true, however, that a long curved branch, though more powerful, will render the effect somewhat fatter, as coming from a greater distance, especially if the branch is at all flexible and yielding, than it would by the quick and rigid effect of a shorter lever, made perfectly straight and inflexible; these branches may also be turned or bent, not only backward or forward, but also outwards and inwards. At their extremities, these turned outwards, are laid to be strongest of all in their operation.

As to the cheek-piece, or baquet, as it is called by the French, for an appropriate name is wanting to this part in the English language; the eye of the baquet, say the horsemens, commands and gives efficiency to the rest of the bit; or, in other words, decides the distance of the chain from the mouth-piece, or centre of motion; as however, in speaking of the other parts, we have had occasion to introduce a sufficient account of this, it will not be necessary farther to give it a separate consideration; nor will it be useful to describe the numerous mongrel herd of bits engendered of the snaffle and curb, which are reducible to the properties of one or the other, or partaking of both.

The most useful bit of the curved kind, appears to be the Weymouth-bit, which is at present in common use for draft horses of light work, as for carriages, coaches, &c. It consists of a strong, plain mouth-piece, of uniform thickness throughout, without any upset or jewes, but is simply curved forwards, to give liberty to the tongue; this kind of construction is the simplest perhaps that the curb admits of.

In concluding, it remains for us to notice the proper application and adjustment of these bits to the horse's mouth, and to treat of their real effects.

By the management of the head-flall, the snaffle bits should be so adjusted as to fall in the middle space between the tushes and grinders, resting upon the bars: the mouth-piece of the curb should also occupy the same situation when, however, it is used along with the snaffle, the bits of the snaffle should be placed highest in the mouth.

If the bits are placed too high in the mouth, the horse carries his head aloft; if too low, he floops the head, and tries to catch them in his teeth.

The thicker and more flay, and the wider or broader the bars of the horse, the rougher may be the mouth-piece for the leaner and more delicate; consequently, the bits should be left severer. Care should also be taken that the mouth-piece be well suited to the size and width of the mouth, and be not too narrow, as this would give pain by squeezing the bars together; if, on the contrary, it is very wide, it reifies with more force on the bars, without the interpolation of
of the lips, as is most usually the case. Where the tongue is large and prominent, the upper should also be in proportion, otherwise the bits could not rest upon the bars, but would press upon the tongue.

In regard to biting the horse, and the consideration of its effects, we cannot desire to see anything more conformable to truth and reason, than what has been given us by Mr. Dr. Revere, and with some useful extracts from his valuable performance, we shall conclude this article.

Of biting horses with the curb. "In the beginning of an and taking, whole aim is to founde and reclaim nature, and that at a time when she is wild, ignorant, and even wilderished as the attempts which are made upon her, it is evident that she must not be treated with levity, but firmly, with patience, and by small degrees, and that nothing should be offered that may hurt, surprise, or occasion any dissuasion.

The horseman, therefore, should not affect the part of a tyrant, but of a lover; not endeavour to force her to submission, but strive to gain her content and good will by kindness, and the gentlest attentions; for what prospect of success would rougher manners afford? To what purpose would it be to compel a colt to go forward, or turn from fear of the whip or spur, and to trot and gallop so freely as to supple his limbs, and form his paces; if the novelty of the bit, and the unaccustomed restraint to which it subjects him, should vex and confound him, so as to make him not know what to do, or how to behave in these extremes? It cannot be expected, that he will be guided, and go with ease to himself, or pleasure to the rider, if the instrument, by which he is to be conducted, offends or gives him pain; all habits and acquirements should be attained gradually, and almost imperceptibly: rigour and precipitation would ruin all; and, instead of forming the horse to the execution of what is required, may plunge him into vice and rebellion, so as to occasion much trouble and loss of time before he can be reduced.

He should therefore, at first, be considered as if he was designed to be formed to all the delicacy and exactness of the bit; and the horseman should be content, if he will endure it in his mouth, so as to grow, by little and little, accustomed to it, till the restraint becomes by habit so familiar and easy, that he not only is not offended, but begins even to delight in it; for this purpose, great care should be taken that the bit be easy and gentle in all its parts; that the mouth-piece be larger than it need be for an horse already bitted; that it in no wise impedes the bars, squeezes the lips, or galls the tongue.

The mouth-piece, called a cannon, with a joint in the middle, will be the most suitable; the ends of it should be as large and full as the size of the mouth will permit, for the thicker and more blunted they are, the easier they will be for the horse, and the appu lefs frieck and fevere.

The links of the curb should be big, smooth, and well polished; the curb somewhat long. The branches should be exactly even with a line of the banquet, to make the appu moderate and equal; they should likewise be long; nor does it signify what shape they are, for with most horses they ought to be so weak, as fearfully to have any effect; so requisite it is to guard against every thing that may annoy or disturb the horse in these first trials. In order to reconcile him to this new constraint, the reins should be held in both hands; and the horse, for some time, should only walk under the rider. Above all, upon this, and all other occasions, a firm, a light, and diligent hand, is necessary.

Such are the outlines and general principles upon which the art of biting horses is established; which art, as far as it reaches, is pure and constant; but while, in spite of all the merits and praises of which it has so long been in possession, will, upon a serious and strict trial, merit. I doubt, be found adequate to the views of a found and intelligent horseman, nor capable of bringing a horse to that degree of fitness and exactness of curbing, which the truth and perfection of the art require; these attentions seeming to have been referred for a more simple but powerful machine, called the snaffle."

"To perform his business judiciously and gracefully, the animal must first be made supple in his bone parts, and his head and neck so managed, that one may be raised, and the other arched or bent, more or less to the hand to which he is to turn. The bridle, called the bit, is so important in its endeavours to rule the head, that it even produces the opposite effect; nor from the confinement in which it keeps the horse, and the small compass it affords for the action of the rein, does it allow the rider sufficient room to bend him, without pulling down his head, and putting him upon his shoulders, both of which are incompatible with the true and sound principles of the art. The frequent use of cavesons and bridles, fully evinces the want of power in the bit to supple the horse, or raise the forepart.

The figures and representations of horses working upon different leasons, may be appealed to for the confirmation of this attention; the books of past times abound with them, especially thatboatook work of that king of horsemen, the duke of Newcastyle, whose horses are all drawn with their heads between their knees; and yet are exhibited to the equestrian world as standards of truth, and models of perfection. The successes of this duke, and of other great masters, as imitators, are generally a blind and servile herd, ran headlong into the errors, and adopted the faults of their predecessors; and always made use of bits, without reflecting upon their effects, or perceiving that they could operate to make the horse carry low, or to put him upon his shoulders, while they thought that he was all the time upon his haunches."

"If ever there was a panacea, or universal medicine, the snaffle is one for the mouths of horses; it suits all, and accommodates itself to all; and either finds them good, or very speedily makes them so; and the mouth once made, will be always faithful to the hand, let it act with what agent it will. This bridle can at once subject the horse to great restraint, or indulge it in ease and freedom; it can place the head exactly as the horseman likes to have it, and work and bend the neck and shoulders to what degree he pleases. He can raise the head, by holding up his hand; by lowering it, it can be brought down; and if he chuses to fix and confine it to a certain degree he must use for this, as well as for the purpose of bending, double reins; that is, two on each side, the ends of which must be fastened in a staple near the pomell of the faddle, or to the girths, higher or lower, as the mouth, proportions of the horse, and his manner of going require; and if properly measured and adjusted, will form and command the horse fo effectually, as in a great degree, to palliate many imperfections of the mouth, and many faults in the mould and figure."

"The reins thus fastened, or even one only, for the sake of working one jaw and one side, will operate more or less, as the branches of a bit; and the snaffle will almost be a bit, a bridon, a caveson, and martingal, in one. When the horseman would bend the horse, he must pull the rein on that side to which he is going; and lengthen that of the opposite, that they may not counteract each other. No thing
BITE

thing will awaken a dull mouth, and bring it to life and feeling, so soon as this bridle. If the mouth be hard and callous, the iron should be so twisted as to have a fort of edge, which will reach the lips, and when they will permit, the bars also; and if gently moved, or drawn from side to side, keep the mouth fresh and cold. If the twisted, or rough flannel, be thought too harsh, and the hand not skillful enough to moderate its effects, a smooth flannel may be used; or if a bit of lain be wrap round the twisted flannel, it will make it easy and smooth; and the mouth, once made fine and delicate, will be true to its feelings, will obey the flannel, and follow the hand with as much exactness and precision as the bit knows to demand, but with more freedom and boldness than it ever can allow.

Such are the properties and merits of the flannel, which long observation, and not a little experience, have taught the writer of this article to think preferable (generally speaking) to those of the bit; and which he has been therefore induced to point out and recommend with due deference to others, but with a greater deference to truth and justice.

"Detrabere autus,
Hærentem capiti multa cum laude coronam."


But is also used for a little tool, fitted to a fock or handle, for the purpose of boring. In this lenae, we say, the bit of a piercer, an augre, or the like; meaning that iron part of those tools witherewith the holes are bored.

The bit used by the block-makers, refembles the shank of a gimlet, from fix to twelve inches long, and from half an inch to an inch in diameter, and has at its end either a screw, a sharp point, or edge, for the purpose of cutting or boring holes. The centre-bit is a bit, having in the middle of its end, a small feel point, with a sharp edge on one side to cut horizontally, and a sharp tooth on the opposite side to cut vertically. Holes bored with this instrument, are not liable to split. The counterfunk-bit is a bit having two cutting edges at the end, reversed to each other, which form an angle from the point. Goose-bit is a bit formed from the centre-bit, with a hollow edge at its end, like a gouge. Nafe-bit is a bit similar to a gouge-bit, having a cutting edge on one side of the end.

Bit of a Key, is that part fitted at right angles to the shank of the key, wherein the wards are made. See Lock, &c.

Bit is also used in Commerce, for a piece of coin current in Jamaica, and valued at 7d.

Bits, or Bitts, in a ship denote a frame composed of two upright pieces of timber, called the pins, and a cross piece fastened horizontally on the top of them; used for belying cables and ropes to. Bowline and bow-bitts are situated near the masts; the fore-jer, and top-sail-bitts are situated in the fore-cable, and round the fore-mast; the main-jer, and top-sail-foot-bitts are on the quarter-deck; the rigging-bits are the largest bits in the ship, and are those to which the cable is bitted, when the vessel rides at anchor. The cable is bitted, or confined to the bits by one turn under the cross-piece, and another turn round the bit-head. In this position, it may be either kept fixed, or it may be veered away.

Bit-Stoppers, are those stoppers that are used to check the cable. See Stopper.

BITAZA, in Ancient Geography, a town of Asia, in Asia, according to Ptolemy.

BITBOURG, in Geography, a town of the Netherlands, in the duchy of Luxemburg before the revolution, but now a principal place of the canton of the same name, in the department of Forêts, containing 1658 inhabitants; the population of the canton confining of 7160 persons. Its territorial extent includes 225 kilometres, and 12 communes. N. lat. 50° 5' E. long. 6° 43'.

BITCH, in Zoology, is the female of the canine species, in contradistinction to dog. (See Canis.) It is sometimes used in a similar sense with respect to foxes, the female being termed a "bitch-fox;" though the more common appellation among sportmen is a "vixen." Bitches are sometimes spayed, to prevent their further propagation; the best time for which operation is about after the heat is gone off.

BITCHE, in Geography, a town of France, and principal place of a district, in the department of the Moselle, containing 2130 inhabitants; the number of those in the canton being 10,441. Its territorial extent is 3125 kilometres, and it includes 23 communes. It is seated on a river at the foot of the Volges mountains, on the frontiers of Deux Ponts. It was taken by Lewis XIV, and fortified by Vauban; afterwards dismantled and restored to the duchy of Loraine. In 1743, it was again fortified. Before the revolution, it was the capital of a country, including 50 villages. N. lat. 49° 5'. E. long. 7° 44'.

BITCHU, or BITZU, a province of Nipon, in the islands of Japan, between about 34° 30' and 35° N. lat. and 134° 30' E. long. Bitchys, a tribe of Tartars, visited by La Perouze in 1787, and described by him. See Orrotchys.

BITE is defined to be a solution of the continuity of a soft part, caused by the impregnation of an animal's teeth.

Bite of Madder. See Hydrophobia.

Bite of Serpents. See Poison.

Bite of Kettle-fish. See Poison.

Bite of the Tarantula. See Tarantism.

Bite is also applied, in a less proper sense, to the impregnation of other sharp or pungent bodies. Thus a file is said to bite the metal; aqua fortis bites, or eats into copper. An anchor is also said to bite, when it holds fast in the ground.

BITERLAGH, or Bitherlage, the ancient Danish military or camp law.

The word is compounded from biter, mulct, and lagh, law; q. d. the law of mulct, or eates.

Among the laws of the Danes, there are two peculiarly eminent; viz. the bier frin, or court law; and the bitherlage ract, made by Canute the Great, about the year 1035, of which an edition has been given by Rubenius.

BITETO, in Geography. See Bibetta.

BITHABA, in Ancient Geography, called also Birthama, a town of Asia, in Asia, according to Ptolemy.

BITHER, a city of Judea, called by St. Jeron, Bethor, which was the place of retreat of the impolltor Barchochebas, fortified by him, and made the capital of his New Kingdom. It was besieged by the Romans under Julius Severus, A D. 134, and after an obstinate resistance, compelled to surrender. See Barchochebas, and Bethorhon.

BITHEREMAN, a town of Prencicia, according to Sozomen, situate at the extremity of the territory of Eleutheropolis.

BITHILA, a town of Asia, placed by Ptolemy in Cilicia.

BITHIAS, a town of Asia, in Mesopotamia, according to Ptolemy. Allo, a river of Thrace, according to Appian.

BITHICA, a town of Asia, in Mesopotamia. Pro lemy.

BITHYÆ, people of Thrace, who, according to Steph.
The chief cities of Bithynia on the coast were Mytilene, Dardanos, Sais, and Nicomedea the metropolis. On the Bosporus stood the famous city of Chalcedon. In the Euxine Sea were Situnia and Apollonia. The principal inland cities of Bithynia were Prusa, Libylia, and Nicca or Nicea. Its chief rivers were the Phasis, Capus, Sangarius or Sagaris, Hippos, Rhades, and Lyecus; all discharging themselves into the Euxine Sea between Chalcedon and Hermus. As Bithynia lies between 41° and 43° of north latitude, and is watered by many rivers, it once abounded with all the necessaries of life. The ancients compared some of the inland provinces to the fruitful and delicious vales of Tempe; but at present it lies in a great degree neglected and unimproved. Bithynia was anciently inhabited by various nations, differing in their manners, customs, and language; namely, the Bebryces, the Marindini, the Caunones, the Dolliones, and the Cimerii. These different nations were anciently governed by their own kings; Bithynia being, in the earliest times, divided into as many kingdoms as nations or tribes. However, in the process of time, these petty princes were reduced by the more powerful kings of Bithynia. According to Diodorus Siculus, the Bithynians had kings from the time of Ninus; and, according to Appian, they had 49 sovereigns before the Romans obtained possession in Asia. But this high antiquity is rendered doubtful by the silence of Homer respecting the Bithynians. Strabo (l. xii.) speaks of one Prusias, who reigned in Bithynia in the time of Creusus, the last king of Lydia, by whom he was conquered. From this period, the Bithynians continued subject first to the Lydians, and afterwards to the Persians, till the reign of Alexander the Great; for we find them mentioned by Herodotus among the many nations that attended Xenocrates in his expedition into Greece. While they were subject to the Persians, they seemed to have been still governed by their own princes. Under Nicomedes I. the Gauls, whom he called to his assistance, first passed into Asia, and obtained a settlement in that part of Asia Minor, which was called from them Gallo-Grecia and Galatia. The last king of Bithynia was Nicomedes IV., who, at his death, in the year before Chr'ist 75, bequeathed his kingdom to the Romans, by whom it was reduced to the form of a province.

Bithynia, in Modern Geography, forms one of the districts of Asia Minor, and is the nearest province to Turkey in Europe, being parted from it only by the tall strait called the Thracian Bosporus. Its principal cities are Prusa, Nice, and Nicomedea.

BITHYNIARCHIA, a sort of superior priesthood in the province of Bithynia, to which belonged the superintendence of the sacred games, and which gave an exemption to

him poffessed of it, called bithyniarcha, from the care of the tuteurage.

BITHYNIUM, in Ancient Geography, the ancient name of a city of Bithynia, afterwards called Chauliodos.

BITHIS, in Zoology, a species of Coluber that inhabits Brail. Above, this creature is cinnereous, yellow, varied with white and red, and transversely brown bands; beneath, yellowish, with a middle row of very minute scales. Gen. Crot. &c. Viperidae of Laurent. Amphi.

BITON, in Cosmology, the name of the Linnean cypreas pedestris in Adanson's Senegaal, &c.

BITON, in Entomology, a species of Papilio, so named by Esper. It is papilio damen of Gmelin.

BITONTO, in Geography, a town of Naples, in the province of Bari, about 8 miles from the Adriatic, the see of a bishop, suffragan of Bari. This is a fine town, containing 16,000 inhabitants, of more early fortunes, and more polished manners, than those who dwell in the cities along the coast; its markets are well supplied, and it has an air of affluence. The country between it and Bari, at the distance of 9 miles, is much very indufed; and though thorny, fertile in corn, almonds, olives, wine, and fruit of all kinds. Near this city an obelisk was erected by the king of Spain, with some fulsome inscriptions in praise of himself, his father Philip, his soldiers, and the count of Mortemar, who was honored with the title of duke of Bitonto, for having defeated the Austrians on this spot in 1734. The monument, however, which records a trivial victory, is crumbling to ruin.

BITTACLES, or Binacle, a square box, or frame of timber, placed in the fleereage of a ship, wherein the compass is placed. The word is formed, by contraction, from the French bittacles, which signifies the name.

Large vesels have two bittacles, a leffer placed before the pilot, and a greater before the fleerman.

In the smaller vesels, the bittacle is divided into three spaces or apartments; in large vesels into five. One for the hour-glasses; another for the lamp or light; another for the compasses, &c.

Great care is to be taken in the disposition, framing, &c. of the bittacle, that it stand true, and that it be not fastened together with iron nails, but with wooden pins, because the former would affect the compasses. See Compass.

BITTENDORF, in Geography, a town of Silefia, in the principality of Neuffe, 2 miles N. of Otmutian.

BITTER, in Sea Language, denotes the turn of the cable round the bitts.

BITTER almond. See Almond.

BITTER apple. See Colocynthis.

BITTER end of a cable, that end which remains on board round the bitts, when the ship is at anchor; the other part of the cable being veered.

BITTER gourd. See Colocynthis.

BITTER place, loco amarus, a poor barren soil, by Pliny called terra amara, fove macera.

BITTER purging falls, fal catharticum amarum. See Epson Salt.

BITTER root, in Botany. See Solanum.

BITTER walnut. See Orobus.

BITTER waters. See Water.

BITTER wine. See Wine.

BITTER wood and of. See Quassia.

BITTERwort. See Gentiana.

BITTERFELD, in Geography, a town of Germany, in the circle of Upper Saxony, and electorate of Saxony, feated
BITTEN, in Ornithology, the Linnean order Dullariae to which see.

BITTERS, in the Materia Medica. The quality of bitters (a simple perception familiar to every one, and which cannot be defined) is much more frequently met with in vegetable matter, than in any other order of natural substances; and in this, it mostly refides in a certain soluble matter, with tolerably uniform chemical properties, which has by some been denominated bitter extract. This distinction, though not perfectly accurate, is of considerable use in pharmacy; for whenever a bitter taste is perceived in any part of a vegetable, we may conclude, with much probability, that it refides in this specific part of the vegetable, and especially that it gives certain medicinal properties, which experience has shown to be in the highest degree important.

The bitter principle is found in combination with a variety of other active substances, which modify, alter, correct, or impair its medicinal powers.

A pure, simple bitter vegetable (of which gentian, or quafia are good examples), is entirely void of smail, has neither acerbities nor alkaliency to the taste, nor does it excite nausea, unless in excessive quantity. The bitters are readily extracted by almost every menstruum, aqueous, as well as spirituous; and in the simple bitters, little, if any, difference, is perceived in the soluble properties of what is extracted, whatever be the menstruum. The bitter extract is not volatile by heat; hence, in the distillation of bitter plants that yield an essential oil (worm-wood, for example), the distilled oil has none of this taste, the whole remaining in the residue. A watery, or spirituous infusion of a bitter plant, insipid nearly to drynades, becomes intensely bitter, often with an empyreumatic, or a somewhat altered taste. This, when further dried, becomes solid and pulvulent. The extract is a convenient form for the substance, but the flavour is not so acceptable to the palate as the simple infusion.

The bitter extract is considerably antifeptic. Experiments have proved that the putridity of animal matters is much retarded by immersion in bitter infusions, even the watery; and substances already putrid, in some degree, lose their taint by this addition. The watery infusions of bitter vegetables mould by long keeping, and become sour. This change takes place in summer, in five or six days, when the infusion is not very strong. The newly acquired acid taint in some degree marks the bitters; but this latter quality remains extremely long, and is hardly ever lost by spontaneous decomposition.

The effect of the simple bitter on the human body, is generally considered as purely Tonic. It does not raise the pulse; nor does it directly, or constantly, produce any change in the secretions or excretions of the body. Its chief and most obvious operation is to increase the appetite, and promote the digestive powers; and hence it is with reason supposed, that its virtues depend on stimulating the fibres of the stomach. From this single effect may be derived the well known use of bitters, in giving general tone and vigour to the system, in a vast variety of cases of debility, unconnected with organic disease, in checking accezency of the stomach, heartburn, flatulence, and other symptoms indicating a deficiency of the digestive powers, and in extending its salutary operation through the whole of the alimentary canal, restoring the regular and natural action of the bowels impaired by the original defect of the digestive organs.

Bitters have been supposed to form an increase to the intoxicating powers of spirituous liquors. This however, appears to apply only to the narcotic bitters, and to be attributable to the narcotic, and not the bitter principle. On the contrary, the salutary action of bitters on the digestive powers, is well calculated to correct the extreme and peculiar debility of the stomach, induced by habitual drinking.

An anthelmintic virtue (or power of expelling worms from the human body) has been attributed very generally to all bitters indiscriminately. This does not, however, appear to be much foundation for this opinion, unless the bitters are combined with a purgative property, as in aloes, or possibly a narcotic. The contents of the intestines being always intensely bitter by the natural admixture of bile, it does not appear probable that animals, which live and grow in such a medium, can be much molested by a small addition of this principle, though from a vegetable matter.

An excetive habit of taking bitters, may at length prove detrimental to the stomach, by over-excitement, or by inducing a kind of artificial demand for food, in greater quantity than is salutary to the general health. A remarkable example of the danger of these medicines, long persifled in by persons of gouty habits, is afforded by the operation of the Portland powder in this disease.

The chief combinations of the bitter principle used in medicine are Narcotic bitters, such as opium, fufa Sancti Ignatii, bitter almonds, and the kernels of many plants: Aromatic bitters, as orange-peel, cascarilla, and wormwood: Afflucent bitters, a very large class, and generally combined both with tannin and the gallic acid, of which cinnamon, and many other barks are striking examples: Acid and purgative bitters; the fquill, colocynth, aloes, and some other combinations of thes frequency.

For medicinal use, the aromatic is always an useful addition to the bitter, and is generally employed.

The most important of the animal bitters is the bile, the properties of which have been mentioned under that article. In tonic power, it closely resembles the vegetable bitters. Late experiments make it probable, that the Prufic acid, a very peculiar animal bitter, possesses properties similar to the vegetable narcotic bitters.

A few of the mineral, or common saline combinations, are distinguished by bitters of taste; but it is doubtful how far
far this principle modifies their medicinal powers. The nitrate of silver is of this kind, a salt esteemed to be a very powerful tonic, taken internally in small doses. Some of the faine combinations of magnesia have the same taste, and it is possible on this account, that the sulphat of magnesia will often be retained by very irritable stomachs, when other faine medicines are rejected. For the pharmaceutical preparations of the several bitters, see the respective articles; as Gentian, Quassia, Columbus, &c. and that of Bitter Extract.

BITTOUR, in Orythology. See BITTERS.

BITUBERCULATA, in Lutonology, a species of Casida, of a brown colour, with a white margin; wing-cases spotted with black, and a single tuberole at the base of each. A native of Cayenne. Fabricius.

BITUBERCULATUS, a species of Curculio, that inhabits New Zealand. This is of a ferruginous colour; thorax length of the wing cases, and dotted, with two tuberole on the back. Fabricius.

BITUBERCUSULI, a species of Cryptogelalus (Grisevity), that inhabits Africa. It is fulvous; wing-cases pale, entirely bordered with fulvous. Fabricius.

BITUMEN, Bitume, Fr. The bitumens, properly so called, form a species of compound mineral inflammables, of which the following are the characters. 1. By exposure to the air, and the application of heat, they burn with a flame more or less vivid, and leave scarcely any residue. 2. By destructive distillation, they yield a liquid acid, but no ammonia, a variable but small proportion of charcoal being left behind in the retort. 3. They are either liquid, or capable of being rendered so by a moderate degree of heat. Bitumens may be divided into two families, the non-elastic and elastic. To the former belong naphthae, petroleum, mineral tar, mineral pitch, and asphaltum; to the latter belong mineral coal, cokemone, and suberiform mineral cokemone.

§ 1. Non-Elastic Bitumenes.

NAPHTHA, Bergnaphtha, Naphte, Bitume liquide blanche, is a substanee of a light brown, or wine yellow colour, perfectly fluid and transparent. It is the lighted of all liquids, its specific gravity being 69708 to 732; it has a strong penetrating bituminous smell; it takes fire with great readiness, and burns with a bluish yellow flame and copious black smoke, leaving no residue. It may be rectified by distillation with water, in the same manner as the essential oils, and then becomes colourless, and weaker in its odour. It does not combine in any considerable degree with either water or alcohol, but unites easily with ether, with turpentine, with caoutchouc, and the essential oils. When rubbed with the caustic fixed alkalies, it form a kind of Starkey's soap. The concentrated sulphuric and nitric acids are decomposed with vehemence upon it, converting it into a solid resinous substance soluble in alcohol. Even the purest naphtha, when exposed to the air, becomes friable of a yellow, and then of a brownish colour, acquires a somewhat viscid consistence, and thus passes into petroleum. Naphtha is procured for the most part from very copious springs of this substance at Baku on the shore of the Caspian sea, where it is burnt in lamps instead of oil, and is used medicinally both externally and internally in rheumatic and other complaints. It is also met with in Calabria and some parts of Italy.

Petroleum, Rock-oil. Erdohl, Stein-oil. Petroleum. The colour of petroleum is a blackish or reddish brown; it is fluid, though somewhat viscid; it is almost opaque, is unctuous to the touch, and exaltes a strong bituminous odour; its taste is pungent and acid. Sp. gr. 0.747, 0.854. Petroleum may be rectified by distillation with water, in which processes, the carbon, which thickens and colours it, is left behind in the retort, and a colourless fluid comes over, possessed of all the properties of naphtha. When petroleum is distilled per fer, there first arises some naphtha, then a watery empyreumatic acid, and lastly a thick dark-coloured oil, a spongy coal remaining in the retort. In its combinations with, and chemical actions on other substances, it perfectly resembles the preceding speciees. It is found wherever naphtha is, and in many other places among stratified mountains, in the vicinity of coal. In England, Coalbrook Dale, and Pitchford in Shropshire, are the principal places where petroleum is found; at the latter place extensive flara of sandstone are saturated with petroleum, and the naphtha, procured by distillation of the stone, is sold under the name of Betton's British oil, and is esteemed an active remedy in ulcers and rheumatism.

MINERAL TAR, Barbados Tar, Bigherith, Gondor mineral. This substance differs from the preceding only in degree; it is very vivid, more opaque, of a darker colour, and, when distilled, leaves a larger carbonaceous residue. It is found native together with petroleum, and may also be procured by the distillation of coal.

MINERAL Pitch, Maltha. The external characters of maltha are extremely similar to those of common pitch; when heated, it emits a strong unpleasant odour. In cold weather it may be broken, and exhibits a vitreous lucre; but when warm it is soft and tenacious.

ASPHALTUM, Sulphurco, Erdpech, Asphalt. The colour of this substance is black or brownish black; it is light and brittle; when broken, it displays a conchoidal fracture and vitreous lucre; it has little or no odour, unless it is rubbed or heated. It is considerably inflammable, melts easily, and burns away without leaving any residue. It is principally found on the shores of the Dead Sea, in Syria, and in the island of Trinidad in the West Indies.

The principal use of asphaltum is an ingredient in certain varnishes, especially that used by the copper-plate engravers.

§ 2. Elastic Bitumenes.

MINERAL CAOUTCHOU, Elaschiches Erdpech, Paix minerale elastique. The colour of this substance varies from yellowish brown to olive brown and blackish or reddish brown. The light coloured is often in a semiholid state, and adheres to the fingers; the olive brown is solid and elastic; the blackish and reddish brown are hard and little elastic. It occurs talacitical, or involving, or in masses. Its fip. grav. in the soft varieties is about 0.9, and in the hardest and least elastic is 1.2. It passes into asphaltum.

It is partly soluble in sulphuric ether; but the residue of the solution, after evaporation of the ether, is not elastic; thus forming an essential difference between the vegetable and mineral cokemone.

This singular mineral has been hitherto only found in the cavities of a lead mine, near Calleston, in Derbyshire, called the Odin mine, accompanied by asphaltum.

SUBERIFORM MINERAL CAOUTCHOU. This substance, when recently cut, exactly resembles fine cloke cork in its colour and texture; but by exposure for a few days to the air, it becomes of a pale reddish brown colour. It is also sometimes found friable, and passing by decomposition into an ochraceous powder. It has only been found in a rivulet near the Odin mine, whence the preceding is obtained, and appears to differ from it, merely by being penetrated with water. It occurs in nodules of various sizes, some weighing upwards of 13 pounds, the nucleus of which is very commonly the brown perfectly elastic mineral cokemone. Fourcroy Syll. vol. viii. Brochant. Mineralog. vol. ii. p. 58. Dict. d' Hist. Nat. art. Bitume. Gren. Syll. Handbucr. vol. iii. p. 1. Hatchet on Bitumens in Linnear Trans.
BITURIGES Cubi, in Ancient Geography, the name of a people who occupied a considerable part of Aquitania Prima, and who had been much more powerful before Caesar's conquest of Gaul, than they were afterwards. Livy says, that, in the time of Tarquin, they commanded the whole portion of Gaul called Celtic. Their capital was dominatized

Avenicum, which see. In the time of Caesar, these people lost their power, and became subject to the Aburi, or at least were reduced to the necessity of putting themselves under their protection.

Bituriges Virolesi, a people who inhabited the southern part of Aquitania Secunda, and are supposed to have derived their origin from the Bituriges Cubi. Their capital was

Boulogna; which see.

BITURIS, a town of Hispanic Tarraconensis, in the country of the Vacones. Ptolemy.

BITYLA, a town of the Peloponnesus, not far from the Melian gulf, S.W. of Sparta.

BITZLEER, Liwa, in Biography, a celebrated Jewish rabbi, who flourished in Bohemia about the close of the sixteenth century. He converted with the emperor Rudolph, and he was so famous, that the Jews fied of him, that all Israel drank of his waters, and walked by his light. He founded the academy, called Klauta, in 1592, which acquired such repute in his time, that it drew a vast concourse of disciples to him. He was chosen at last superintendent of all the synagogues in Poland.

BITYLA, or, in Bology, bivalvular conchae, one of the three principal sections, into which all tabellaceous animals are divided. The Limaxen genera of bivalve shells are mya, tellina, cardium, macra, conus, spondylus, chama, arca, oliva, azou, mytilus, and pinna. The arrangement of the bivalves by Cuvier, Lamarck, and other naturalists differs materially from that of Linnaeus and Gmelin. See CONCHOSCOLOGY.

BITYLA, is also applied, in Botany, to the filique, or feed-pods, of such plants as open their whole length to discharge their seeds. Such are pea, beans, &c. which the botanists say, have bivalve or bivalvular filique.

BITYLO, in Conchology, the name given by Adanson to the shell called by Linnaeus (Syst. Nat. ed. 12.) musce

fabriculatus; and vulgata cancellaria. Gmelin.

BIVENTER, from bis and venter, in Anatomy, a name given to muscles that have two flabby portions, which were called bellies, and one tendon. Such muscles are also called digastricus. The term biventer has been applied to a muscle of the lower jaw and os hyoide, which is described under its more common title of digastricus. Albimus also designates a portion of the mucus complexus of the neck, biventer cervicis. See COMPLEXUS.

BIVERI, in Geography, a lake of Sicily, near Lentini, which in summer and autumn, renders the situation of this town very uninhabitable. The waters of this lake, and of the neighbouring marshes and ponds, abound with eels and tench, of the ree of which the fishermen make a large quantity of botarga, a species of caviar; it is very fat, and has the taste of tar, but is much relished by the Sicilians.

BIVINCO, the principal place of a canton, in the department of Golo, a d island of Corfica, the population of which consists of 1573 persons.

BIVIO. See BIVIO.

BIVITTATUS, in Entomology, a species of Scarabaeus (Melobonta), that inhabits Brazil. It is yellow and very glossy; on the head and thorax two common stripes, and many abbreviated green stripes on the wing-cases. Swedenus Nov. Act. Stockhil.

BIVITTATUS, a species of Cucullo, found in St. Thomas's island. It is black; wing-cases furnished with dots; marginal and dorsal interrupted stripe of yellow. Fabricius.

BIUMBRES, from bis, double, and umbra, shadow, in Geography, an appellation given to the inhabitants of the torrid zone, because at two different seasons of the year, their shadows are projected two different ways.

The buimbres are the name for those otherwise denominated amphibia.

BIUMI, Paul Jeron, in Biography, born at Milan in 1663, studied medicine at Padua, where he was admitted to the degree of doctor in 1685. Returning thence to Milan, he soon acquired to much fame for his learning and skill in his profession, that in 1699 he was made professor of anatomy there, in which situation he continued to the time of his death, in 1731. He was author of several works, of which the following are most known:—"Encomiasticus lucis, seu lucis encomia in physiologia medicinae noven fundamentis et veterum theologis crutis, atque culto anatomico, autopsique caracteris confirmatis," Medic. 1701, 4to. "Sorrito de Natumie a de Cirurgia," Milan, 1712, 8vo. Haller. Bib. Anot. et M. Elov. Dict. Hist.

BIVONA, in Geography, a town in the kingdom of Naples, and province of Calabria Ultra, 10 miles N.E. of Nicosia.


Linnaeus has adopted the South American vernacular name of bixa from Oviedo; and it is known by the same name in Holland, Denmark, and other northern countries. In Holland it is likewise called Oripe; in German, Anott, &c. In England this name is adopted, but its orthography is various. As Arnot, Arnot, Anotta, Anoto, Anoto, and Arnotta. The French have adopted the Brazilian name. Urubu, or Ureun, spelling it Ronzyrer, Roncon, or Roncier des Indes. The Portuguese have also the same appellation.
appellation Urucu, or Urucueira. In Spanish it is Año, or Atolle. In the Mexican language, Achoti. Scalliger calls it abor fiuminum regundorum, because the Mexicans made plans, and marked the boundaries of their lands on tablets, with the colour prepared from the berries. Tournafort named it Metella, from the resemblance of the capule, when open, to a mitre. For the preparation of the drug, and its uses, see ANNO. The bark of the bixa makes good ropes for common use in the West Indies; and pieces of the wood are used by the Indians to procure fire by friction.

Propagation and Culture. This plant is propagated by seeds, may be easily cultivated, and is planted in many parts of Jamaica, Barbadoes, Cavanne, &c. in rich soils, and shady situations, shooting luxuriantly near rivulets. It is also propagated with us by seeds, which are annually brought in great plenty from the West Indies. These should be sown in a small pot filled with light rich earth, and plunged into a hot-bed of tenants' bark, where, with proper temperature, the plants will appear in about a month; when they are about an inch high, they should be taken out and separated without injuring their roots, and each planted in a pot of light rich earth, and plunged into a fresh hot bed of tenants' bark, shading them every day till they have taken root; afterwards they should be treated like other plants of the same country, by admitting fresh air to them in proportion to the warmth of the season; and when the heat of the sun declines, it should be turned up to the bottom, and if necessary, fresh tar added to renew the heat. The plants must be refreshed with water three times a week in summer, but not in great quantities, as with much wet their roots would rot. Plants that are raised early in spring, and properly managed, will be a foot and a half high in autumn, when they should be removed into the bark flore, and plunged into the tan-bed. During the winter, they must have but little water, and while the plants are young, they should be kept warm; otherwise they will call their leaves, lose their tops, and appear unhealthy. They must be kept constantly in the bark flore; some of them rife seven or eight feet high, with strong stems and large heads; but seldom produce flowers in Europe. Martyn's Miller.

BIXE, in Ent molg., a species of Papilio (Pleb. Urb.), with roundish, brown wings, greenish at the base, and a milky band on the under side of the posterior wings. Linn. Fabr &c. Inhabits America.

BIZACIUM, in Ancient Geography. See Byzantium.

BIZAM, Chat-Bizam, in Zoology, the French name of the Limnean viverra tigrina, which see.

BIZANO, in Geography, a kingdom of Abyssinia, situate between the branches of the Nile, called the White and the Blue rivers, about N. lat. 10° 15', and between 35° and 56° E. long.

BIZANTIA, a town of European Turkey, in the province of Moldavia, 40 miles south-west of Bithyn.

BIZARRE, Fr. denoting capricious, &c. a term used among Flurishes for a particular kind of carnation, which has its flowers striped or variegated with three or four colours.

BIZE, in Geography, a town of France, in the department of the Aude, and district of Narbonne, 10 miles N.W. of Narbonne.

BIZERTA. See Biserta.

BIZES, in Ancient Geography, a river of Bithynia, between Pitus and Rhecus. Annian. Marcell.

BIZOCHI, or Bischi, in Ethnological History, a sect or branch of religious Saxons, conducted by several popes.

The Bizchi were all called fraticelli, or fratre de poor, i.e. sometimes Bichini or Bichini, or Bichini. The name is formed from frater, on account of a double bank, or wallet, wherewith they begged their living. See Beggarmen, and Tertiaries.

BIZONE, in Ancient Geography, a city of Lower Me- fia, 83 stadia north of Dionysopolis, mentioned by Pliny (L IV, c. 12,) as having been destroyed by an earthquake.

BIZONIES, in Geography, a town of France in the department of the Eure, and chief place of a canton; in the district of La Tour du Pin, 12 miles north-west of Morans.

BIZU, a town of Africa, in the kingdom of Morocco, seated on a mountain in a fertile country, 25 leagues north of Morocco.

BIZYA, in Ancient Geography, a town of Thrace, and capital of the country called Asia, at some distance from the sea, N.W. of Salmydessus.

BIZYA, in Geography, a town of European Turkey, in Romania, 50 miles east of Adrianople.

BLACK, something opaque and porous, that imbibes the greatest part of the light that falls on it, reflects little or none, and therefore exhibits no colour. See Blackness.

Bodies of a black colour are found more inflammable, because the rays of light falling on them are not reflected outwards, but enter the body, and are often reflected and refracted within it, till they be fixed and lost. They are also found heavier, cotteris purpuris, than white bodies, being more porous. It may be added, that clothes dyed of this colour wear out faster than those of any other, because their substance is more penetrated and corroded by the vitriol necessary to fixle their dye, than other bodies are by the galls and alum which suffice for them.

The inflammability of black bodies, and their disposition to acquire heat, beyond those of other colours, are easily evinced. Some appeal to the experiment of a white and black globe worn in the same sun; the consequence will be a very sensibly greater degree of heat in the one hand than the other. Others allege the phenomena of burning-glasses, by which black bodies are always found to kindle sooner; thus, a burning-glass, too weak to have any visible effect at all upon white paper, will readily kindle the same paper rubbed over with ink. Mr. Boyle gives other proofs still more obvious: he took a large tile, and having whited over one half of its superflicies, and blacked the other, exposed it to the sun; where having let it lie a convenient time, he found, that while the white part remained still cool, the black part was grown very hot. For farther satisfaction, the same author has sometimes left on the surface of the tile a part retaining its native red, and exposing all the to the sun, has found the latter to have contracted a heat in comparison of the white part, but inferior to that of the black. So also on his exposing two pieces of silk, one white, the other black, in the same window to the sun, he often found the latter considerably heated, when the former has remained cool. It is observable likewise, that rooms hung with black are not only darker, but warmer than others. Boyle's Works abridg. tom. 1. p. 144. and tom. ii. p. 36. To all which may be added, that a virtuoso of uninfected credit affirmed Mr. Boyle, that, in a hot climate, he had, by carefully blackening the shells of eggs, and exposing them to the sun, then them thereby well roasted in a short time.

Dr. Watson, the prefect bishop of Landaff, covered the bulb of a thermometer with a black coating of Indian ink, in consequence of which the mercury rose ten degrees. Phil Trans. vol. liii. part 1. p. 40.

Black clothes heat more, and dry sooner in the sun, than white clothes. Black is therefore a bad colour for clothes in hot climates; but a fit colour for the linings.
of ladies' summer hats. Dr. Franklin's Experiments, Observations, &c. 5th ed. p. 483, & seq. He observes also, ibid. p. 382, that a chimney painted black, when exposed to the sun, will draw more strongly. We may add, that black mould is a hotter foil for vegetables; and garden-walls, painted black, answers better for the ripening of wall-fruit, than those of lighter colours.

Black, in matters of dress, is the distinguishing habit of avaricious and mourners. Some will have it, that the common people among the Romans were clothed in black; whence the denomination given them of tecta post hue.

Black, Joseph, in Biograpy, a celebrated teacher of chemistry, was born at Bordeaux, in France, in the year 1728. His father, who was a native of Belfast, in Ireland, but of a Scotch family, carried on the wine trade at Bordeaux, and lived in intimacy with the famed baron Montefquieu, who expressed his regret in strong terms on Mr. Black's quitting Bordeaux, when he retired from business, as appears by several of his letters which are preserved by the family. By his mother, Dr. Black was closely related to the wives of Dr. Adam Ferguson, and Mr. James Ruffel, professor of natural philosophy at the university of Edinburgh, and who was probably much of his knowledge to the instruction or information he obtained from them. In the year 1746, his father sent him to Belfast, that he might have the education of a Britsh subject; and from his letters, he appears to have been satisfied with the progress he made there. In 1746, he went to Glasgow, where he applied to the study of medicine, but particularly to chemistry, into the knowledge of which he was initiated by Dr. Cullen, who then gave lectures there on that branch of science. Under his direction he made such progress, that, in 1756, when Dr. Cullen removed to Edinburgh, Black, who had previously taken his degree of doctor, succeeded him as professor in medicine, and lecturer in chemistry. That he was qualified to fill this office, he had shewn by an ingenuous essay, containing experiments to investigate the nature of magnesia, quicklime, and some other alkaline substances, recommended as solvents of the stone in the bladder. In the course of these experiments he demonstrated the existence of an aerial fluid, which he called fixed air, the presence of which gave mildness, and its absence causticity, to alkals; and calcareous earth—an discovery which laid the foundation of the improvements since made in our knowledge of gases, or aerial bodies, by Priestley, Cavendish, Lavoisier, and other chemists. The essay, containing the account of these experiments, was published in the second volume of "The Transactions of the Royal Society, in 1755. The following year he further enriched his favourite science with his experiments on the heat, which is found to exist in all bodies; explaining in a satisfactory manner the connection of heat and fluidity, by which he established his reputation, that on Dr. Cullen's being promoted from the chemical to the medical chair at Edinburgh, in 1757, he was unanimously chosen to succeed him as professor in chemistry there. His time was now dedicated, and with increased ardour, to imparting the knowledge he had acquired to his numerous pupils; and as he was perfectly master of the subjects on which he lectured, his doctrines were fully explained, as to be easily understood by his auditors, many of whom took complete copies of his lectures. By this means the knowledge of the discoveries he had made, became widely diffused, and his claim to them secured to him, which might otherwise have been ascribed to those who improved and extended them. Having thus laid the ground-work for the improvement of the art, he seems to have been contented, without attempting to push his discoveries further. Satisfied with the attention paid him by his pupils, and the gradual extension of his fame, of which he received daily proofs, he took little notice of what Priestley, Lavoisier, and other philosophical chemists, were doing; or only noticed them when they had neglected making those acknowledgments to him which he knew to be his due. Dr. Robison, who had been his pupil, and has lately published his lectures, with an account of his life, attributes this apparent apathy to the ill state of his health, which, for several years before his death, did not permit that degree of application and study, which the farther extension of his discoveries would have required. "The slightest cold," he says (Preface to the Lectures, p. 1.) the most trifling approach to repetition, immediately affected his breath, occasioned feverishness, and, if continued two or three days, brought on a pitting of blood. In this situation nothing restored him but relaxation from thought, and gentle exercise. The sedentary life, to which study confined him, was manifestly hurtful; and he never allowed himself to indulge in any intense thinking, or puzzling research, without finding these complaints feebly increased." Hence, though he had the honour of being elected one of the foreign affiliates of the royal academy of sciences at Paris, and member of the imperial academy at Petersburg, he sent no communications to either of those learned societies. As he ranked high among the teachers of chemistry, and his name and character were extended over Europe, his pupils were numerous, and continued increasing for the whole time he lectured, more than thirty years. In the year 1774, he sent to the Royal Society in London, his observations on the effect of boiling upon water, in depositing it to freeze; and, in 1791, the Royal Society at Edinburgh published his analysis of the waters of some hot springs in Ireland, in the third volume of their Transactions. In this paper, which is drawn up with great accuracy, he treats of the formation of the effusive flame, which is deposited by these springs. His constitution becoming more and more feeble, from the frequent returns of his complaint, he was first oblig'd to make use of an assistant in his lectures, and at length, to give them up altogether; the small exertion bringing on a fit of hemorrhoea. "But he seemed," Dr. Robison says (Preface, p. 73.), "to have his complaint almost under command, so that he never allowed it to proceed far, or to occasion any distressing illates, and to spurn his thread of life to the last fibre, guarding against illates by restricting himself to a moderate diet, and meeting his increasing infirmities with a proportional increase of attention and care." On the 20th of November 1799, and in the 71st year of his age, he died suddenly, without any previous warning. Being at table, with his usual fare before him, some bread, a few prunes, with milk and water for his drink, having the cup in his hand, reposing on his knees, he expired suddenly in that posture, the cup remaining in his hand, and his countenance so composed and placid, that his servant at first imagined he was fallen asleep. He was of a cheerful and amiable disposition, and, as his mind was well stored with knowledge, an entertaining companion. His company was therefore much courted; and, as his circumstances were affluence, he dedicated as much of his time to the pleasures of society, as was consistent with his avocations. He was never married, he therefore left the principal part of his fortune, which is said to have been considerable, among the children of his brothers and sisters.

Black, in the Munger. A horse of a deep, flining, and
and lively black is called a black-more, or coal-black. Horses
black all over are commonly reckoned dull and melancholy;
but a white foot, or bar in the forehead, gives them a de-
gree of sprightliness. The Spanish gravity is said to be bett
pleased with those entirely black.

Black, blue, in the Manufactures and Arts, is the cool of
some kind of wood, or other vegetable matter, burnt in a
clothe heat, where the air can have no access; the bolt fert
is said to be made of vine-stalks and tendrils. The good-
ness of blue-black consists in the cleanliness and blue cat
of its black colour, and the perfect degree of its levigation.

That this preparation, which is sold in the colour-floos,
is no other than a vegetable coal, appeared from the fol-
lowing experiment of Dr. Lewis. (Comm. Phil. Techn. p. 358.)
Laid on a red hot iron, it burned and glowed like powdered
charcoal, and turned into white ashes; which ashes, thrown
into a roll of vitriol diluted with water, very readily dissolved
into a bitterish liquor, the characteristic by which the vegetable
earth is distinguished. From what particular vegetable mater this black-blue is procured, experiments, he says,
cannot discover; but it appears from thence how he recites,
that it may be obtained from many, and that the choice
of the vegetable subject affects rather the softness or hard-
ness than the colour of the coal. Blue-black, perfectly
good, may be prepared in the manner directed for ivory
black, from the vine filks, or tendrils, or any other
twig of wood, of an acid taste and tough texture; but the
foaming in the oil, preferred for the ivory, must be omitted.

The painters have blue-blacks, brown-blacks, &c., which
may be made by mixing pigments of the respective colours,
with simple black oils in greater or less quantity, accord-
ing to the shade required. The dyers also have different
blacks, and often darken other colours by slightly paling
them though the black dying liquor; but the term brown-
black is in this business unknown, brown and black being
here looked upon as opposite to one another. In effect,
the colour called brown-black is no other than that which
all dyed black clothes change to in wearing; and therefore
it is no wonder that it should be excluded from the cata-
logue of the dyers' colours. The true or simple blacks,
mixed with white, form different shades of grey, lighter or
darker, according as the white or black ingredient prevails
in the mix. The black pigments, spread thin upon a white
ground, have a like effect. Hence the painter, with
one true black pigment, can produce on white paper, or
on other white bodies, all the shades of grey and black,
from the slightest discolouration of the paper up to a full
black; and the dyer produces the same effect on white
wool, silk, or cloth, by continuing the subjects for a
shorter or longer time in the black bath, or making the bath
itself weaker or stronger.

M. le Blon, in his "Harmony of Colours," forms 15 k
by mixing together the three primitive colours, blue, red,
and yellow; and Mr. Caettel, in his "Optique des couleurs,"
published in 1740, says, that this compound black has an
advantage in painting above the simple ones, of answiering
better for the darkening of other colours. Thus if blue, by
the addition of black, is to be darkened into a blue-black,
the simple blacks, if used in sufficient quantity to produce
the requisite deepness, conceal the blue, while the com-
ound blacks leave it ditinguishable. Le Blon has not
mentioned the proportions of the three primitive colours
necessary for producing black. Caettel directs 15 parts of
blue, five of red, and three of yellow; and he observes, that
the colours should be the deepest and darkest of their respec-
tive kinds, and that a combination should be made to
several pigments for each colour; for the greater the contrait
of heterogeneous and discordant drugs, the more true and
beautiful will be the black, and the more capable of uniting
with all other colours, without suppreffing them, and even
without making them tawney. Dr. Lewis, in his experi-
ments, has not so far succeeded as to obtain a perfect black
by mixing different blue, red, and yellow powders; but he
procured very dark colours, such as brown-blacks and grey-
blacks.

Black, bone, is made of the bones of bullocks, cows, &c.,
well burnt and ground. To be good, it must be soft and
friable, of a glossy cast. It is in considerable use, though
inferior in goodnes to ivory-black.

The invention of bone, or ivory-black, is attributed to

Black chalk, See Chalk, and Kiln.
Black charcoal. See Charcoal, and Crayons.
Black, carriers, signifies a teint or dye laid on tanned
leather. Tanned leather is so much impregnated with the
altrigent parts of oak bark, or with that matter which
flushes a black colour with green vitriol, that rubbing it
over three or four times with a solution of the vitriol, or
with a solution of iron made in vegetable acids, is sufficient
for staining it black. Of this we may be convinced by
dropping a little of the solution on the unblacked side of
common shoe-leather. This operation is performed by the
carrier, who, after the colouring, gives a gloss to the leather
with a solution of gum-arabic and fide made in vinegar.

Where the previous altrigent impregnation is insufficient
to give a due colour, and for those forts of leather which have
not been tanned, some galls or other altrigents are added
to the solution of iron; and in many cases, particularly for
the finer sorts of leather, and for renewing the blackness,
ivory or lamp-black is used. A mixture of either of these
with linseed oil, makes the common oil-blacking. See
Currying.

Black, dyes, is one of the five simple and mother-colours
used in dyeing: and given differently, according to the
different quality and value of the stuffs to be dyed. See
Dyeing.

Green vitriol strikes a black colour with vegetable altrig-
ents, and hence it is the basis of the black dye for cloth,
leather, hats, &c. And as solutions of iron with galls, &c.
produce the same colour, a method is derived from hence
of distinguishing the minute portions of iron in mineral
waters, &c. Neumann.

The substances chiefly employed for producing black
colour with vitriol are galls. When a decoction or infun-
ation of the galls is dropped into a solution of the vitriol
largely diluted with water, the first drops produce bluish or
purplish red clouds, which mingling with the liquor tinge it uni-
formly of their own bluish or reddish colour. This differ-
cence of the colour, says Dr. Lewis (Com. Ph. Techn. p. 356.),
seems to depend on the quality of the water. With diluted
water, or the common spring waters, the mixture is always
blue. A minute quantity of alkaline salt previously diffuscd
in the water, or a small degree of putrefy in it, will render
the colour of the mixture purple or reddish. Rain-water
received from the clouds, in clear glass vessels, gives a blue,
but if it be collected from the tops of houfes, gives purplc
with the vitriol and galls. Both the blue and purple
liquors, when more of the altrigent infusion is added,
deeper to a black, more or less intense, according to the
degree of dilution; and if the mixture be a deep opaque
black, it again becomes bluish or purplish when further
diluted. If it be suffered to stand in this dilute state for
two or three days, the colouring matter settles to the
bottom in form of a fine black mud, which, by gently
shaking
black.

Making the vessel, is diffused again through the liquor, and tinges it of its former colour. When the mixture is of a full blackness, this separation does not happen, or in a far less degree, for though a part of the black matter precipitates in standing, yet so much remains dissolved, that the liquor continues black. This suspension of the colouring substance in the black liquid may be attributed in part to the gummy matter of the allringent infusion increasing the confidence of the watery fluid, for the separation is retarded in the diluted mixture by a small addition of gum arabic. If the mixture, either in its black or diluted state, be poured into a filter, the liquor passes through coloured, only a part of the black matter remaining on the paper. The filtered liquor, on standing for some time, becomes turbid, and full of fine black flakes; but being freed from these by a second filtration, it again contracts the same appearance, and thus repeatedly, till all the colouring parts are separated, and the liquor has become colourless. The colouring matter, thus separated from the liquor, being drained on a filter and dried, appeared of a deep black, which did not seem to have suffered any change on being exposed to the air for upwards of four months. When it was made red hot, it gloved and burnt, though without flaming, and became a rusty brown powder, which was readily attracted by a magnetic bar; though in its black state, the magnet had no action upon it. The vitriolic acid, diluted with water, and digested on the black powder, dissolved the greatest part of it, leaving only a very little quantity of whitish matter. Solution of pure fixed alkaline felspar dissolved very little of it; the liquor received a reddish brown colour, and the powder became blackish brown. This residuum was attracted by the magnet after being made red-hot, though not before; the alkaline tincture, passed through a filter, and mixed with solution of gum vitriol, struck a deep brownish black colour, nearly the same with that which results from mixing with the vitriolic solution an alkaline tincture of galls. For an account of the result of these experiments, see Lewis, ubi supra. See also Iron.

For broad cloths, fustains, and druggets, &c., the dyers use wood and indigo; the goodness of the colour consists in there not being above six pounds of indigo to a ball of wool, when the latter begins to cast its blue flower; and, in its not being heated for use above twice. Thus blued, the stuff is boiled with ale, or water, then madder and lafly, the black given with galls, copperas, and fumace. To bind it, and prevent its smearing in use, the stuffs are to be well scoured in the fuling mill, when white, and well washed afterwards.

For stuffs of less value, it is sufficient they be well blued with wood, and blacked with galls and copperas; but no stuff can be regularly dyed from white into black, without passing through the intermediate blue.

Yet there is a colour called coal black, or Jefuit's black, prepared of the same ingredients as the former, and sufficient of itself without the blue dye. Here the drugs are diffused in water that had boiled four hours, and flood to cool till the hand would bear it; then the stuff is dipped in it, and again taken out six or eight times. Some even prefer this black to the other. This mode of dyeing black is laid to have been invented by the Jesuits, and to have been practised in their houses, where they retained numbers of dyeing.

By 23 El. c. 9. nothing of the nature of cloth shall be madderred for a black, except it be first grounded with wood only, or with wood and ancle [blue ind.] madder be put in with fumace or galls; on pain of forfeiting the value of the thing dyed; provided it shall be lawful to dye any manner of gall-black, and fumace black [plain black], wherein no madder shall be used.

Logwood yields a black with chalybeate solutions and is employed with those liquors for staining wood black, as picture frames, &c. With the addition of galls, it is used for dyeing cloth and hats black. (Neumann's Works, p. 587.) This black colour is not permanent, though beautiful, any more than the natural violet dye of the logwood.

Black may be also obtained by a solution of silver in aqua fortis, when the previous matter stained with this liquor is exposed for some time to the sun and air; and also from solutions of lead in acids, when the subjects to which they are applied are exposed to fulphurous vapours, or washed over with alkaline solutions of sulphur. Cakes of lead, melted with sulphur, form a bluish or blackish mass, useful in taking casts from medals. (See Casts.) Besides, when a solution of silver in aqua fortis is added to a solution of sulphur made in alkaline ley, the silver and sulphur unite and precipitate together in the form of a black powder. See Dyeing, and Staining.

Black, earth, is a kind of coal found in the ground, which, well pounded, is used by painters in fresco. See Pit-coal, and Fresco.

There is also a kind of black made of silver and lead, used to fill up the strokes and cavities of things engraved.

Black, German, or Frankfort, is made of the lees of wine burnt, then washed in water, and ground in mills for that purpose, together with ivory or peach stones burnt. Some suppose, that it is the coal of vine-twiggs; but this, says Dr. Lewis (Com. Phil. Techn. p. 377.), does not appear to differ, in any great degree, from that of the fals branches of other kinds of trees; but the kernels of fruits yield coal considerably more soft and mellow, easily crumbling between the fingers into a fine meal. That the Frankfort black is no other than a vegetable coal, appeared, from its burning on a red-hot iron, like charcoal powder, into white ashes, and from the ashes, like common vegetable ashes, being plentifully dispersible by the vitriolic acid into a bitterish liquor, while the ashes of animal substances are very sparingly affected by that acid, and form with it a compound of a different kind of tafe.

This black makes the principal ingredient in the rolling-pens printers' ink, which fee. It is ordinarily brought from Frankfort, Mentz, or Strafsbourg, either in lumps or powder. That made in France is more valued than that of Germany.

Black siles. See Glass. Black, burnt, that which remains in the retort after extracting the spirit, salt, and oil of hartshorn. This refuse being ground up with water, makes a black not much inferior to that of ivory.

Black, Indian. See Indian Ink.

Black, ivory, is made of ivory burnt or charred, ordinarily between two crucibles well lit; which, being thus rendered perfectly black, and in feales, is ground in water, and made into troches, or little cakes, used by the painters; and also by the jewellers to blacken the bottom or ground of the collets, wherein they set diamonds to give them their teint or foil. Some recommend soaking the chips or shavings of ivory in hot linseed oil, before it is charred. There are particular machines and contrivances for burning the ivory for these purposes, by which the colour is rendered more beautiful than that of the coal which remains in the distillation. Neumann.

The goodnes of ivory-black, which is the dust of all the charcoals black, may be perceived by its fulness, without a blue cast; and by the finenes of the powder.
In the manufacture of this black much imposition is practiced, so that what is generally sold under this name is no other than the coal of common bones. Being applied to coercive purposes, and sold at a low price, it is very greatly levigated by the hand or horse-nails which are employed in grinding the bones, and to much adulterated with charcoal dust, which gives it a blue cast, that it is wholly exploded from delicate infes, and lamp-black, though inferior with regard to the purity and clearness of the black colour, substituted for it.

The following recipe is given in the Handmaid to the Arts (vol. i. p. 140.) for preparing it in perfection. Take plates, chips, or shavings of ivory, and soak them in hot linseed oil; or, if filings are more easily procured, they may be used moistened with the hot oil. Put them into a vessel, which will bear the fire, covering them with a sort of lid made of clay and sand; which should be dried, and the cracks repaired before the vessel be put into the fire. Let this vessel be placed in a tobacco-pipe maker's or potter's furnace, or any other such fire; and let it remain there during one of their heats. When it is taken out, the ivory will be properly burnt; and must be afterwards thoroughly well levigated on the flute with water, or to have it perfectly good, be also washed over. The ivory may be conveniently burnt in a calcing or subliming furnace.

An opake deep black for water colours is made by grinding ivory-black with gum-water, or with the liquor which seethes from the whites of eggs after they have been suffered to stand a little. Some use gum water and the whites of eggs together, and they say, that a small addition of the latter makes the mixture flow more freely from the pencil, and improves its glossiness. It may be observed, however, that though ivory-black makes the deepest colour in water, as well as in oil-painting, yet it is not on this account always to be preferred to other black pigments. A deep jet-black colour is seldom wanted in painting; and in the lighter shades, whether obtained by diluting the black with white bodies, or by applying it thin on a white ground, the particular beauty of the ivory-black is in a great measure lost.

Black, lamp, or lam Black, originally perhaps the foot collected from lamps, is generally prepared by melting and purifying reifn or pitch in iron vessels; then letting fire to it under a chimney, or other place made for the purpose, lined a-top with fleece-flins, or thick linen cloth, to receive the vapour or smoke, which is the black; in which manner they procure vast quantities of it at Paris. In England considerable quantities are prepared, particularly at the turpentine-houses, from the dreages and refuse parts of the reifnous matters which are there manufactured; but the greatest part is brought from Germany, Sweden, and Norway. Its preparation is described in the Swedish Translations for 1754, as a process dependent on the manufacture of common reifn. —

The impure reifnous juice, collected from incisions made in pines and fir-trees, is boiled down, with a little water, and strained, whilst hot, through a bag; the dregs and pieces of bark, left in the strainer, are burnt in a low oven, from which the smoke is conveyed, through a long passage, into a square chamber, having an opening in the top, in which is fastened a large fack, made of flaky or thin-woven woolly stuff; the foot, or lamp-black, concretes partly in the chamber, from which it is swept out once in two or three days, and partly in the fack, which is now and then gently struck upon, both for shaking down the foot, and for clearing the interlaces between the threads, so as to procure a sufficient draught of air through it. The more curious artificers prepare lamp-black for the nicer purposes, by hanging a large copper pan over the flame of a lamp with a long wick, supplied with more oil than can be perfectly consumed, as to receive its smoke. Soot collected in like manner from fir and other woods, by burning small pieces of them slowly under a copper pan, is of a deeper black colour than such as is obtained from the same kinds of wood in a common chimney, and little inferior to that of oils. The foot of mineral bitumens, in this close way of burning, appears to be of the same qualities with those of woods, oils, and reifns. In some parts of Germany, it is said, great quantities of good lamp-black are prepared from a sort of pit-coal.

The goodness of lamp-black lies in the fulness of the colour, and in its being free from dust or other impurities. The lightness of the subfilance furnishes the means of discovering any adulteration, to a great degree; as the bodies with which lamp-black is subject to be adulterated, are all heavier in a considerable proportion.

This subfilance is used on various occasions, particularly in the printers' ink; for which it is mixed with oils of turpentine and linseed, all boiled together.

It must be observed, that this black takes fire very readily, and when on fire is very diftinctly extinguished: the best method of putting it out is with wet linen, hay, or straw; for water alone will not do it.

A glass tube closely filled with lamp-black has been found to conduct a considerable charge of electricity instantaneously, and with fear no explosion. But a coating of this subfilance, mixed with tar or oil, is a perfect non-conductor, and has proved a preventative from lightning, by repelling the electric matter from those parts of the masts of ships which have been covered with it.

Ruffian lamp-black is prepared from the foot of fir, and is collected at Ochat near St. Petersburg, Moscov, Archangel, and other places, in little wooden hats, from reifnous fir wood, and the unctuous bark of birch, by means of an apparatus uncommonly simple, confifting of pots without bottoms, let one upon another, and is sold very cheap. It is three or four times more heavy, thick, and minute, than that kind of painters' black which the Germans call "kiennrahm," and which is called in Ruffia "Holland's black." For an account of the spontaneous accenfion of Ruffian fir-black, impregnated with hemp-oil, see Spontaneous Inflammation.

A mineral lamp-black may be procured from pit-coal, or any kind of mineral or coal tar, by prefering the blackest particles of the smoke arising from it in ignition. Mr. W. Row of Newcastle-upon-Tyne obtained a patent in 1798 for his method of manufacturing this kind of lamp-black. See the specification in the Repertory of the Arts, &c. vol. x. p. 81.

Black paint. See Paint.
Black flock. See Sand.
Black feeling wax. See Wax.
Black, foot, or chimney, is a poor colour; but ready for painting black draperies in oil. The foot blacks are in general much softer and of a more yielding texture than those of the charcoal kind, and require much less grinding, for uniting them with oily, watery, or spirituous liquors, into a smooth mass; of some of them a part is dissoln by water, or spirits of wine, while none of the charcoal blacks have been found to contain any thing dissoln. This soluble matter of foots, however, is not black like the indiffoluble parts; and in this particular, as well as in the colour of the entire mass, different sorts of foot differ from one another. Thus the foot of pit-coal collected in common chimneys, of itself rather greyish black than of a full black, being
being infused separately in rectified spirit of wine, and in water, tinged the former of a transparent reddish colour, and the latter of a paler reddish; while the deeper black font of wood gave, both to spirit and to water, an opake, dark brown. See Sorb.

Black, Spanish, so called, because first invented by the Spaniards, and most of it bought from them, is no other than burnt cork used in various works, particularly among painters.

Black狂. See Staining.

Black varnish. See Varnish.

Black vegetable pitch. See Anacardium.

Black Ad Waltham, in Essex, a name commonly distinguishing the statute of 9 Geo. I. c. 22, because it was occasioned by the devastations committed near Waltham in Essex, by persons in disguise, or with their faces blacked. By this statute it is enacted, that persons hunting, armed and disguised, or killing or wounding deer, or robbing ware, or stealing fish out of any river, &c. or any persons unlawfully hunting in his maj. fly's forests, &c. or breaking down the head of any fish-pond, or killing, &c. of cattle, or cutting down trees, or setting fire to hoo's, barn, or wood, or shooting at any person, or sending letters, either anonymous, or signed with a fictitious name, demanding mony, &c. or refusing such offenders, are guilty of felony, without benefit of clergy. This act is made perpetual by 31 Geo. II. c. 42. See farther 6 Geo. II. c. 37. and 27 Geo. II. c. 15. Blackstone's Comm. vol. iv. p. 144, 208, 232, 244. The milder punishment inflicted by that 16 Geo. III. c. 30. against deer-dealers, has been thought a virtual repeal of the punishment of the black act above-mentioned.

Lesch's Hawk. P. C. I. c. 47. § 7.

Black bay, in Geography. a bay on the south-east coast of Labrador. N lat. 51° 30'. W. long. 56° 20'.

Black bear, in Zoology. See Ursus Arctos.

Black-bellied darter, and Black-bellied anhinga of Latham, in Ornithology, is Plutos Melanoger of Gmelin.

Black-bellied grebe of Brown's Illustrations, is Loxia Alfredi of Gmelin.

Black-bellied green humming-bird of Edwards; Black-bellied American humming-bird of Bancroft; and Black-bellied humming-bird of Latham, are all the same bird; namely, Trochilus gobiferus of Linn. and Gmel.

Black-berry, in Botany. See Rubus.

Black billed awk of most English writers, in Ornithology, is Alca Fica of Linn. Syr. Nat. and Fabricius.

Black-billed tropic bird, so named in Latham's Synopsis, is Phaetan melanerhynchos of Gmelin.

Black-billed whistling duck of Sloane and Brown's Jamaica, is called Anas Arborea by Gmelin.

Black-tit. The proper acceptance of this word among the English writers of the present time, is very clearly understood; the Turdus meurula of Linnaeus and other naturalists being alone implied. The earlier ornithologists of this country are much more precise in the application of this word: with them, birds of the fame natural order were sometimes called black-birds, because they bear a remote resemblance to the common species most familiarly known by that name, as we frid, for instance, in the two kinds of turdus, torquatus, and rofocus, both of which are called, in a general manner, black-birds, white-ringed black-birds, rose-coloured black-birds, and the like. Thus far, indeed, there existed a flitting natural affinity between the species, because they all belong to the same natural order, and were, in reality, of the family they called merula, which seems to have been considered in certain instances synonymous with black-bird. But all the early writers did not confine themselves to such minute distinctions as the generic character afforded: the black-bird (razor-billed) of Catsby, being, for example, of a very dissimilar genus to that of our common black-bird; namely, the creatophaura of modern writers. Again, the black-bird (red-breasted Indian) of Willoughby, is one of the oriuus; the black-bird (red-breasted) of Edwards, belongs to the tangerina; and the black-bird, or Chinese, harling of the fame author, is a gracula. Birds of the sparrow, titmouse, and other kinds, altogether remote from the former, were also called occasionally black-birds. We may, therefore, easily perceive that the word black-bird was an indefinite term, applied, for the most part, to those birds whose plumage is of a black colour, without regard to the natural order to which they ought to have been referred, although sometimes employed to express only that which we shall distinguish by the name of black-bird. See Turdus Merula.

Black-book of the Exchequer, Eng. House, Money, Order, Star. See the several articles.

Black-bunks, a name given to those which treat of necromancy, or, as some call it, nigromancy.

The black-book of the English monasteries, was a detail of the scandalous enormities practised in religious houses, compiled by order of the visitors under king Henry VIII. to black a man, and thus halen their dissolution.

Black-bred ted grebe of Latham, in Ornithology, is Colymbus thornecap of Gmelin.

Black-bred ted grebe of Latham, is Loxia Americana of Gmelin.

Black-bred ted humming-bird of Latham, is spoken of by Buffon under the name of Hauff col vert; Gmelin calls it Trochilus gramineus.

Black-breasted Indian plower of Edwards, is a variety of Charadrius spinosus of Gmelin. The female of this bird is called by Edwards the four-winged plower, a nain retained by Latham for both sexes. In Ruell's Aleppo it is called the lapwing.

Black-bred ted thrush. Latham describes Turdus cinna
comus of Gmelin, under this name in the synopsis of birds.

Black-bred ted titmouse of Latham, is Purus afer of Gmelin.

Black-bred wood-pecker of Latham, is Picus multi
color of Gmelin.

Black-bufnch of Albin, like Pyrrhula nigra of Bliffon, and Buurenilvoid of Buffon, is nothing more than an accidental variety of the common bufnch, or Loxia pyrrhula of Latin writers. The bufnch occurs sometimes of a white colour, as well as black or dully.

Black-bufnch, (Little) of Catsby and Albin, and Black grebe of Latham, is Loxia nigra of Gmelin.

Black-canker, in Agriculture, a dicate in turnip and other crops, produced by a species of ecterpillar destroying their leaves.

It is observed by Mr. Young, in the second volume of the Annals of Agriculture, that those insects were effectually destroyed by Mr. Coke, at Holkham, in Norfolk, by turning a number of ducks among the turnips when injured by insects. On the 10th of July, says he, they were turned into thirty-three acres, having water at one corner of the field, and, in five days, they cleared the whole field completely, marching at last through the field on the hunt, essaying the leaves on both sides with great care to devour
every one they could see, and filling their crops several times in the day. The ducks, after having fattened about sixty pounds' worth of turnips, were sent to the poultry yard. With this view, it has been suggested by Mr. Middleton in his "Survey of the county of Middlesex," that this sort of poultry may often be kept with advantage by the farmer.

Black-evans, in Ecclesiastical History, a name given to the regular canons of St. Augustine, who wore a black mantle over their surplices, by way of distinction from the Premonstratensian.

Black-cap of the English, in Ornithology, the Motacilla atricapilla of Linnaeus. The same name is given likewise to the marsh titmouse, Parus palustris of Linn. and the black-headed gull, Larus atricilla of Gmelin.

Black-cap of Ceylon, or Ceylon black-cap, the name of Motacilla zeylonica of Gmelin, in Brown's Illustration of Nat. Hist.

Black-capped humming-bird of Latham, and Long-tailed black-capped humming-bird of Edwards and Barcroft, are Trochilus pygmaeus of Gmelin.

Black-capped king's-fisher of Latham, is Alcedo atricapilla of Linn.

Black-capped lory, the English name given by Latham to the Gmelinian ptiloceros lory. This is the first black-capped lory of Edwards.

Black-capped manakin of Edwards and Latham, is Pipra manucaus of Gmelin.

Black-cap, in Geography, lies on the east coast of Newfoundland, S. E. from Cape St. Francis.

Black-cattle, in Agriculture, a small, hardy breed of cattle, mostly of a black colour, occupying the high or more mountainous districts in the northern parts of the island. They are covered with a long close coat of hair, of much the same kind as the polled and long horned breeds. They feed readily in the rich pastures in the southern parts of the kingdom, where large quantities of them are annually driven and fed for sale in the London and other markets. Their beef is generally of a fine grain, well marbled, and of a good flavour; but sometimes not so fine and bright in its external appearance as that of other sorts of cattle, being occasionally, except when made very fat, spotted with black, even upon the choicest parts. From their property of becoming quickly fat, and not being of great weight, they seem well adapted to the low, rich, grazing districts in the southern counties, where the lands are liable to be poached and injured by the heavier breeds of cattle. They seldom weigh more than from twenty to thirty stone each, though some particular ones have become considerably heavier. See CATTLE and LIVE- STOCK.

Black-checked eagle, of Latham's Synopsis, in Ornithology, is Falco meruacanus of Gmelin.

Black-checked thrush of Latham, is Turdus nigerrimus of Gmelin.

Black-chin grebe of Pennant, &c. Colymbus lebriculius of Gmelin.

Black-cock of Pennant, Latham, Donovan, &c. is Tetrao tetrix of Linnaeus. The same bird is also well known by the name of black-game, or black-grons.

Black-cockatoos of Latham, and Great black cockatoos of Edwards, is called by Buffon Kakatôk noir, and by Gmelin Ptiloceros aterrimus. Black-collared finch of Latham, is Fringilla Abyginnica of Gmelin.

Black-crowned bunting of Latham, is Emberiza atricapilla of Gmelin.

Black-crowned manakin of Latham, is Pipra atricapilla of Gmelin.

Black-crowned oriole, the English name of Oriolus Meridianus of Linn. in Latham's "Synopsis of Birds."

Black-crowned plover of Arch. Zool. is Charadrius aterrimus of Gmelin.

Black-crowned oriole of South America is Lanius Americanus of Gmelin.

Black-crowned tanager of Latham, is Tangara melanotera of Gmelin.

Black-crowned parrot of Edwards, is Cacusus nigricula of Linnaeus.

Black-dove, or fester, of English ornithologists, is Anas nigra of Linn. &c. Suec.

Black-dolphin, in Agriculture, a small insect which is frequently very destructive to bean, turnip, and some other crops. Where beans are attacked with these insects, the best remedy probably is, as soon as they are first perceived, to cut off the tops by means of a scythe, as they are found to make their first lodgment, principally in those parts of the plants. See Fly and Turnips.

Black duck of Latham and other writers, in Ornithology, is called by Edwards the great black duck from Hudson's bay. This is a very distinct species from the black duck of Ray and Willughby, and velvet duck of modern naturalists. Gmelin calls it Anas perficillata.

Black-duck, or Great black duck of Ray and Willughby, is the velvet duck of later English authors, and Anas fusca of the Linnaean Fauna Suecia.

Black eagle, in Heraldry, an order of knighthood instituted in Prussia, by Frederick I. 14th Jan. 1701. The ensign of the order is a gold cross of eight points, enamelled blue; in the centre whereof are the letters F. R. in cypher, and in the four angles the eagle of Prussia, enamelled black. On collar days, it is worn pendant to a rich collar of gold, composed of round pieces of gold, each enamelled with four cyphers of the letters F. R.; in the centre of the piece is set a large diamond, and over each cypher a regal crown, all richly chased, intermixed with eagles displayed, enamelled black alternately, and holding in their claws thunderbolts of gold.

The cross of the order is worn, on ordinary days, pendant to a broad, orange-coloured ribbon, across the left shoulder. The knights have embroidered on the left breast of their coats a star of silver, like that of the ensign of the order, in the centre of which is an eagle displayed black, holding in his dexter claw, a chaplet of laurel, and in the other a thunderbolt, with the motto Swam epiyou round it. See Plate of Heraldry.

Black-eagle of Willughby, in Ornithology, is Ptilogus commune of Buffon, and Fasol melanotus of Gmelin.

Black-ears, or Black-ered lynx, in Zoology, called also the Perisan lynx, and Black-ered cat, is the Sigab giau or Sigab gijus of Charleton, and Caracal of Buffon. Gmelin mentions this animal under the name of Felis caracal. See CARACAL, and SIGAH GUSH.

Black-eared, in Agriculture, that kind of earth or mould which contains a large portion of carbonaceous or vegetable matter in its composition. Soils of this sort are capable of producing most sorts of grain and other vegetable crops in abundance. See SOIL, &c.

Black-eunuchs, in the Cyclopedia of Eastern Nations, are Ethiopians castrated, to whom their princes commonly commit the care of their women. See EUNUCH.

Black-eye, in Botany, a name given to the germ in beans, which the Romans called hilum. See GERM.
BLACK.

**Blackeye, hyposphorhena, in Medicina, a fullness of blood on the tunica albuginea, turning livid, occasioned by a blow.** See Ecchymosis.

**Black faced bunting of Latham, in Ornithology, is Emberiza quotulae ofGmelin.**

**Black-faced finch of the Arctic Zoology is Fringilla coerulea of Gmelin.**

**Black-faced ibis of Latham, is Tantalus melanopis of Gmelin.**

**Blackfish, in Ichthyology, the name under which Silurus anguillaris is described in Ruffell’s “Hist. of Alesopo.”** This fish has a long dorsal fin containing seventy rays, and eight bars at the mouth, namely, two on the upper lip, four on the lower one, and two on each side of the mouth. There is likewise a kind of perch mentioned by Borlase as being found in the rivers of Cornwall, which he calls the black fish. Pennant speaks of it on the authority of that writer; and Gmelin, after him, gives it as a species with some doubt. This species meant by Borlase is certainly ambiguous. See Perca nigra.

**Blackfly, in Agriculture, an insect of the beetle tribe, that often commits great devastation among turnip and other crops, destroying the young plants, by feeding upon their feed-leaves the moment they are protruded and appear above ground. Different remedies have been propounded for the prevention of the destructive ravages of this insect on turnips, but few of them have been attended with much success. The best method is probably, that of fowing the feed at such a season, and under such circumstances, that its early vegetation may be quick and uninterrupted, and thereby allow little time for the insects to feed upon the plants, before they become in broad leaf, and capable of resisting its injurious attack.** See Fly and Turnips.

**Blackfly-catcher of Latham, in Ornithology, is Muscicapa lacernigora of Gmelin.**

**Blackforest, mountains of, in Geography, called in German Schwartzwald, extend from near Neuenburg, in the territories of Wurttemburg, south to the four forest towns on the Rhine. The southern part is called the high, and the northern the lower forest; the length being about 80 British miles. To the east the Neckar may be considered as a boundary, and the breadth may be computed at about 20 British miles. The eastern part presents a gradual elevation, while the western exhibits precipitous summits to the inhabitants of Baden and Alsace. The appellation seems to be derived from the thick dark forests with which the affents are clothed. Besides paturage, the inhabitants, partly subject to Austria, and partly to Wurttemburg, derive advantage from the rent of the pines, and the timber, of which they make all kinds of utensils. Some parts are cultivated by spreading branches of pine, covered with sod, which, being burnt, affords an excellent manure, that prepares the ground for four abundant harvests. A branch of the black mountains spreads east from near Sulz, on the Neckar, towards the county of Oettingen, being more than 60 miles in length. This chain is called the Alp, and sometimes the Suabian Alps. Busching traces this ridge from the north-east, the source of the Brenz, to the west of the Neresheim, by Wissensteg, whereof the mountains are highest. Thence they turn north-west to Guttenberg, and west to Neissen, whence they pass by Hohenzollern to the Neckar, then bend south and west between that river and the Danube. Busching adds, that as this chain rises infenibly on Kingstrown north-east, so it gradually terminates at Ebingen south-west. The principal summits are in the north and west of the ridge; and the forests are chiefly beech; while the open spaces supply pasturage for numerous flocks of sheep. Of these two extensive ridges of mountains, the Black Forest and the Alb, a considerable portion pervades the duchy of Wurttemburg; and near Stuttgart, the capital, are the mountains of Bayreuth and Schweinfurt, and Haasen. The contiguous parts of these extensive ridges have been little detailed; but a great part is calcareous, as they supply excellent marbles. Near Freudenstadt, in the black mountains, are mines of silver and copper.**

**Black-footed penguin, or penguin, lesser penguin, cape penguin, &c. in Ornithology, are different English names of an individual species of Aptenodyta in the works of Edwards, Latham, &c. Gmelin names this bird specifically demora.**

**Black fox, in Zoology. See Canis Lycaon.**

**Black-fronted fly catcher of Latham, in Ornithology, is Muscicapa nigrifrons of Gmelin.**

**Black-fryer, in Ecclesiastical History, a name given to the Dominican order, called also Predicants and Preaching fryers; in France, Jacobins.**

**Black-game, in Ornithology. See Black-Cock.**

**Black-graves, in Agriculture, a species of American grasses, growing in meadows which border on tide-rivers, well supplied also with fresh water; for a mixture both of fresh and salt water seems to be necessary for its prolific vegetation. Its seeds are small, like those of tobacco; its colour a deep green; and it affords from three to four tons of hay by the acre. This kind of grass thrives best on a clay or strong loam; nor is the vicinity of salt water absolutely necessary. The seeds have been lately brought over into England, and distributed for trial in proper soils.**

**Black-grsebek of Edwards, in Ornithology, and the Angela greybeck of Latham are the same; Loxia angustirostris of Gmelin.**

**Black-headed bunting of Latham, is Emberiza melanocephala of Scopoli.**

**Black-headed creeper of Latham, and the Green black-cap fly-catcher of Bancroft, are of the same species, the latter being only a variety of the first. Linnaeus calls this kind Motacilla fringilla.**

**Black-headed duck of Shaw’s travels, has been since named the Domiatta duck by Latham, and Anas Domitana by Gmelin in the Linn. Syst. Nat.—The variety of Anas boschas, or wild duck, called nigris, from having the head and collar black, might be also called the black-headed duck.**

**Black-headed finch of Latham, is Fringilla melanopis of Gmelin.**

**Black-headed fly-catcher, of Arctic Zoology; and black-cap fly-catcher of Catesby, is the muscicapa fusca of Gmelin.**

**Black-headed greybeck of Latham, is loxia erythromelas of Gmelin.**

**Black-headed gull, the English name of larus rhinoceri. The same bird is also called the pewet black-cap, or sea crow, by Ray and Willughby.**

**Black-headed Indian stork of Albin and Edwards, is ibis lutosus of the tenth edition of the Linn. Syst. Nat. and erithus melanopechala of Gmelin.**

**Black-headed nut-batch, a variety of the common nut-batch found in Carolina and Jamaica. Buffon and Arct. Zool. Syst. Europea of Gmelin.**

**Black-headed piedew of Latham, is charadrius melanopechala of Gmelin.**


**BLACK.**

Black-headed frike, a species of Lanius, so called by Latham: it is the Lanius melanocephalus of Gmelin.

Black and spotted breast-cock of Edwards, and spotted grouse of Pennant and Latham, are tetrao canaden§is of Gmelin. — Off. There is another black and spotted breast-cock figured also by Edwards, pl. 71, which, in the 12th edition of the Linnaean Syd. Nat. is called tetrao canace.

Black heron of Latham, is the ardea atris of Gmelin.

Black-bodied rufset-car of Latham, is motacilla pilcata of Gmelin.

Black-bunting-bird, the Linnaean, turdulus niger, is so named in the Synopsis of Latham.

Black jacoba: the jaca jamaica nigra of Brilliant, and parra nigra of Gmelin, bears this name in Latham's Synops.

Black jack, or Blend, is a mineral, called alfo falfi galena and blende, &c.

Black-jowled sparwarth of Latham, in Ornithology, is motacilla nigricans of Gmelin.

Black island, in Geography, an island near the coast of America, belonging to the state of Rhode Island. N. lat. 41° 7'. W. long. 71° 35'.

Black islands, islands near the eft coast of Labrador. N. lat. 41° 8'. W. long. 56° 30'.

Black kite, or black-gled of Siberia, is falco ater of Gmelin, and milvus nigry of Brilliant. — Off. Gmelin mentions a black variety of falcon communis under the specific name of ater; it was previously described by Edwards under the name of black hawk or falcon.

Black land, in Agriculture, a name given to a part of soil which has a greyish black cast. This part of foil, though pale when dry, always blackens by means of rain; and when ploughed up at fuch times, it ficks to the plough fpare and the more it is wrought the mudder and deeper-coloured it appears. Thisfes of land, when fomewhat rich, yet porous, light but sufficiently tenacious, are good both for corn and grasses; but as they are mostly fituated in bottoms, the wetnels often fpoils them for corn; but when they are dry, they are extraordinarily fruitful, especially for barley; they also bear good wheat crops. When they are very rich, they may, if a deep mould, be planted with liquorice, or town with hemp, wood, clofe, or rape, madder, and other fimilar plants, that beft fit fuch lands; and afterwards with corn, when fome of their fertility is expended. They are capable of bearing excellent clover crops. The belt manure for these foils is chalk or lime, where it can be procured.

Black lark, in Ornithology. Albin describes an accidental variety of the common lark, alauda arvensis, under this name, in the third volume of his History of Birds.

Black lead, in Mineralogy &c. See Lead and Plumbago.

Black leather, in the Manufacture, is that which has paffed the curriers' hands, where from the erifht as it was left by the tanners, it is become black, by having been foonered and rubbed three times on the grain-fide with copperas-water.

Black legs, a name given in Leickeferhire to a difeafe frequent among calves and fleec. It is a kind of jelly, which fettles in their legs, and often in the neck, between the skin and flesh.

Black legs, an appellation given to thofe gamblers and sharpers who prey upon the ignorance and credulity of in-experienced and unfeafonable persons of property, with whom they contrive to associat, and who fubfift in defcription and luxury on the fpoils acquired by deception and fraud, in a variety of games and sports which they frequent for this purpoce. They are jully denominated the pelt of civilized foceity, and should be fanned by thofe who have any concern for thier property or reputation, as the moft dangerous and deftructive enemies.

Black licks, in Geography, lies in Westmorland county, Pennsylvania, about 36 miles eafe of Pittsburg.

Black lory, of Latham, in Ornithology, is phistis teres Gmelin.

Black mail, in English Antiquity, a certain rate of money, corn, cattle, or other matter, anciently paid by the inhabitants of towns in Westmorland, Cumberland, Northumberland, and Durham, to diverse persons inhabiting on or near the borders, being men of name, and allied with others in those parts, known to be great robbers and spottakers; in order to be by them freed and protected from any pillage. Prohibited as felony, by 43 El. c. 13.

The origin of this word is much contrived, yet there is ground to hold the word black to be here a corruption of blank or white, and consequently to signify a rent paid in a small copper coin called blanks. This may receive some light from a phrase fed used in Picardy, where, speaking of a perfon who has not a single halfpenny, they say, il n'a pas une blanche maile. The term is also used for rents referred in work, grain, or labour money, which were called "reditus nigra" in contradification to the blanch farms, "reditus alba".

Black martir, or waif of the English, in Ornithology, is the virid.opus of Latin writers.

Black monks, in Ecclesiatical History, a denomination given to the Benedictins, called in Latin nigri monachi, or nigromonachi; sometimes ortus nigrorum, the order of blacks.

Black mountains, in Geography. See Black Forest.

This is also a denomination given to an extensive ridge of mountains in South-Wales, separating the boundaries of the counties of Glamorgan and Brecknock; covered in summer with black-cattle and sheep.

Black-necked quail of Latham, in Ornithology, is tetrao nigricollis of Gmelin.

Black necked fwan of Pennant and Latham, stands under the name of anatis nigricollis in the Gmelinian edition of Syd. Nat.

Black-necked thruf of Latham, is turdus nigricollis of Gmelin.

Black nyes, in Geography, a fowrt point on the coast of France, and in the English channel, four leagues W. from Calais.

Black oats, in Agriculture, a species of oats much cultivated in the northern parts of England, and esteemed a very hearty food for horses. See Oats.

Black orelle, of the Arctic Zoology, and Latham's Synopis, in Ornithology, is theterus nigry of Brilliant, and orelus nigry of Linn. and Gmelin.

Black orelle (Lefter), the English name of orelus minor, in Latham's Synopis.

Black of Black's Illuftrations, &c. is fruticula camus of Scopoli, Gmelin, &c.

Black parrot of Latham, and black parrot of Madagascar, and of Edwards, are the name; the phistis nigra of Gmelin.

Black petrel of Latham, and great black petrel of Edwards, stands under the name of procellaria aquinsectalis in Gmelin's edition of the Linn. Syd. Nat.

Black poll warbler of Latham, is motacilla frivata of Gmelin.

Black point, in Geography, Eari of America, within thofe of Elizabeth and Portpoife, in the district of Maine.

Black point, is also a point on the west coast of Africa, between cape Cavallou, and cape Palmas. — Also, a point

S. E.
BLACK.

S. E. from cape Chishley, the north point of the Labrador coast. N. lat. about 50° 20'.—Also, on the coast of Spitzbergen, or East Greenland. N. lat. 78° 30'. E. long. 11° 30'. Variation 10° 42'.

BLACK POOL lies on the coast of Lancashire, about 25 miles S. from Lancaster. The beach is a beautiful level sand, with an extended sea front before it. This place is frequently visited for summer bathing.

Black process. in Ecclesiastical Writers, that which is made in black books, and with black engravings and ornaments. See Procession.

Antiquity at Malta, there was a black procession every Friday, where the whole clergy walked with their faces covered with a black veil.

Black rail of Latham, in Ornithology, is the rallus niger of Gmelin.

Black rat, in Zoology. See Mus Notatus, or Common rat.

Black red-tail of Latham, in Ornithology, is the motacilla arara of Gmelin.

Black rents. See Black mail.

Black River, in Geography, an appellation applied to two small rivers, in Vermont, America; one falling into Connecticut river, at Springfield, and the other running north into lake Mispiremagog.—Also a river in New York, which interlocks with Canada creek, and runs northward into Iroquis river, navigable with boats 60 miles.—Also, a long river, which rises in Virginia, and passes southward into Nottaway river, in North Carolina.

Black River, a British settlement at the mouth of the St. Croix river, 20 leagues to the east of cape Honduras, the only harbour on the coast of Terra Firma, from the island of Rattan to cape Gracias a Dios; and for more than sixty years it was the refuge of the logwood cutters, when the Spaniards drove them from the forest of East Yucatan. This occasioned adventurers of different descriptions to settle here, where the coast is fatly, low, and swampy; but higher up, near the rivers and lakes, which are full of fish, the soil is more fertile, and produces plantains, cacao, sugar, maize, yams, potatoes and a variety of vegetables; and the passion for drinking induced them to plant sugar-cane. The forests are full of deer, fowl, and game. The shores abound with turtle, and the woods with mahogany, zebra-wood, farfapallis, &c.: and the whole settlement Bourihrs spontaneously without cultivation.

Black River, a river of Jamaica, which passes through a level country, and is the deepest and largest in the island, so as to admit flat-bottomed boats and canoes for about 30 miles.

Black Rock, a rock in the mouth of Sligo harbour, in Ireland, which is covered about high water only, and has a conspicuous tower built on it that serves as a beacon.

Black Rock, a Rock in the bay of Galway, in Ireland, about three miles westward of Galway, which dries with spring-tide only, and requires attention in navigating that bay. M. McKenzie.

Black Rocks, rocks in the Atlantic ocean, near the coast of Ireland, about six miles N. W. from Saddlehead, in Achill island, and ten miles W. by S. from Blackfoot point. —There are rocks called by the same name in Killbeg's bay and Mulroy haven, but they are less objects of attention to the navigator. M. McKenzie.

Black Rock, a rock near the south coast of Wexford, in Ireland, about four miles W. by S. of Carnfore point, which is always above water, and may be failed round without danger. M. McKenzie. Boate.

Black Rock, a populous village, situate on the river Tawe, about a mile above Swansea, in Glamorganshire, South Wales, where are considerable smelting-houses, and whence are exported coals, &c.

Black Rock lies also near the extreme north point of the island of Antiqua, between Humphrey's bay and Boom point. N. lat. 17° 5'. W. long. 61° 35'.

Blackrod. See Gentleman Usher of.

Black rowan, a species of iron-stone, or ore, found in the mines about Dudley, in Staffordshire.

Black S.G., in Geography. See Euxine S.G.

Black sheep, in Oriental History, the enigma or standard of a race of Turkmans settled in Armenia and Mesopotamia, it is called the "dung of the black sheep." 

Black start of Latham, in Ornithology, is larius niger of Gmelin.

Black Mexican guion of Latham, is fringilla cattol of Gmelin.

Black skimmer of Latham, cut-watter of Aert. Zool., sea crow of Edwards, are all names of the same bird; the Rynchops niger of Gmelin.

Black girdrel of Catchley, is the fenara niger of Erxleben and Gmelin.

Black flumes and gams, according to Dr. Woodward, owe their colour to a mixture of tin in their composition.

Black strakes, a range of planks immediately above the wale in a ship's side; they are always covered with a mixture of tar and lamp-black.

Black swallow of Latham, in Ornithology, is the hirundo apus dominicensis of Buffon, and hirundo niger of Gmelin.

Black fawn. A bird of this description inhabits Botany Bay. Its form resembles that of the common white-fawn; but the prevailing colour of the plumage is black, instead of white; the wings are edged with white; and the bill is red. This species is described by Dr. Shaw (Nat. Mamm.) under the name of anus atrata. It is the black fawn of several writers who have lately treated on the history of Botany Bay.

Black tail, a beacon about 3 leagues distant from the Nore in the river Thames.


Black tern of modern writers, is the sterna hirundo of the old English ornithologists, and elenvis-footed gull of Willughby. Sterna fluvialis of Brunnich and Gmelin.

Black thorn, in Botany, a species of the prunus, which bear...
BLACK.

**BLACK-throated magpie**, of Latham, the _tanagra nigricollis_ of Gmelin.
**Black-throated magpie**, of Latham, the _pipra nigricollis_ of Gmelin.
**Black-throated thrush**, of Latham, is _purdus ater_ of Gmelin.
**Black-throated warbler**, of the Arctic Zoology, is _metacilla Cannatensis_, of Gmelin.
**Black tit**, in Zoology. See Felis Discolor.

**Black toad-gull** of Pennant, Latham, Walcott, &c. In ornithology, is the _larus croopedatus_ of Hawkeworth and Gmelin.
**Black toad petrel**. The Gmelinian _procellaria melanopis_ is described under this name in Latham's Synopsis of Birds.

**Black town**, in Geography, a settlement of 1200 free negroes, erected in 1783, about a mile from the town of Shalburne, in Nova Scotia.

**Black witch**, in Agriculture, a noxious weed, probably the _polygonum convolvulus_, which flourishes in even extremely dry locations, and is very injurious to many crops.

**Black实战**, in Medicine, a disease to which the inhabitants of Spanish North America are subject, said to be allied to the yellow fever of the United States, and which, at intervals, ravages the country like a pestilence. See Fever.

**Black vulture** of Willughby and Latham, in Ornithology, is _corvus niger_ of Ray, Bruffin, and Gmelin.
**Black vulture**, (crested) of Edwards, the _civorus monachus_ of Gmelin.
**Black woodpecker**, (great), Albin, Donovan, &c. the _picus martius_ of Linn. &c. Suec.

**Black woodcock**. See WADD.

**Black-winged parakeet** of Brown's Illustrations, in Ornithology, is called by Gmelin _pittacus melanopis_.
**Black-winged thrush** of Latham, is _turdus Lambla_ of Gmelin.

**Black and white butcher-bird**. Under this title the _Linn. tanais dobis_ is described and figured by Edwards in his History of Birds. Latham calls it the _pied fly-britke_.

**Black and blue creeper** of Edward's Gleanings, the _cathus frons_ of Gmelin.
**Black and violet creeper** of Latham, is _cathus Brachycephala_ of Gmelin.

**Black and white creeper** of Edwards, and small black and white bird of Ray and Sloane, are _metacilla varia_ of Gmelin.

**Black and white king's fisher** of Edwards and Latham, is the _alcedo radiata_ of Gmelin.

**Black and white wagtail** of Ray, is the _pied wagtail_ of Latham, _metacilla nudicollis_ of Bruffin, and _motacilla poeciloptera_ of Gmelin.

**Black, white, and red Indian creeper** of Edwards, is the _cathus cruentata_ of Linn. and Gmelin.
**Black and yellow creeper**. _Cathus flavicollis_ of Gmelin is described under this name both by Edwards and Latham.

**Black and yellow dwarf** of Brasili. Edwards under this title describes a variety of _tirica Perennis_. Linn.

**Black and white diver** (small) of Willughby and Edwards, is _ala alba_ of Linneus. This bird is likewise called the _Greenland dove_, or sea turtle, by Albin; and is known among later writers by the name of the little _cuckoo_. Penant.

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**Black and white dodo** of Edwards, is the _doby gree_ of later writers; _Colymbus adjeurn_ of Gmelin.
**Black and white duck** (little) of Edwards, and spirit of Arf. Zool., are _anas alba_ of Gmelin.

**Black and white Indian falcon**, the English name of _falco melanoleucus_ (Gmelin) in Pennant's Indian Zoology, and Latham's Birds.

**Black and orange finch** of Latham, and small black and orange bird of Sloane and Ray, is _fringilla melanistera_ of Gmelin.

**Black and white fly-catcher** of Edward's Gleanings, is _myctisaca bicolor_ of Gmelin.

**Black and white gull** of Ray, Willughby, and Albin, is the black-backed gull of modern ornithologists. Linneus calls it _larus marinus_.

**Black and blue humming-bird** of Bancroft, is called by Gmelin _trochilus cyanemas_.

**Black and yellow manakin** of Edwards, is the variety _β_ of the Gmelinian _pipra aurea_.

**Black and orange-coloured bird** (small) of Ray and Sloane, is _motacilla ruticilla_ of Linneus, and _myctisaca ruticilla_ of Gmelin. This is likewise the black-headed warbler of Latham, _small American redstart_ of Edwards, and yellow-tailed fly-catcher of Edward's Gleanings.

**Black and white Chinese phalanger** of Edwards. This is _phasianus mystellus_ of Scopoli and Gmelin. It is likewise called the _pencilled phalanger_ by Latham and other late writers.

**Black and yellow frizzled sparrow** of Edwards's Gleanings, is the _frizzled sparrow_ of Latham, and _fringilla crisp_ of Gmelin.

**Black and white starling** of Willughby, is _frurus leucomalua_ of Bruffin, which Gmelin gives as a variety of the common sparrow, or _frutus euroluris_ of Linneus.

**Black and white Indian starling** of Edwards. This is _frurus coruscus_ of Gmelin.

**Black and blue tanager** of Latham, is the black and blue _turnus_ of Edwards, and _tanagra mexicana_ of Gmelin.

**Black whistling**, in our Old Writers, bread of a middle fineness, between white and brown, called in some parts ravelbread.

In religious houses, it was the bread made for ordinary guests, and distinguished from their household loaves, or _panis conventus_, which was pure manchet, or white bread.

**Black-work**, iron wrought by the blacksmith; thus called by way of opposition to that wrought by whitesmiths.

**BLACKALL, Offspring, in Biography, an English pretender, was born at London, in 1654, and educated at Catherine hall, in the university of Cambridge. Before several promotions in London, he was appointed one of the chaplains in ordinary to king William, though his principles were adverse to the revolution government, and he refused for two years to take the requisite oaths to king William and queen Mary. On the 30th of January 1699, he preached a sermon before the house of commons, in which he animadverted on a passage in Mr. Toland's life of Milton, who, after stating the proofs that Dr. Gauden, afterwards bishop of Exeter, was the true author of the book entitled "Icon Ballicke," and ascribed to Charles I., observes, that many supposititious pieces, under the name of Chrift, his apostles, and other great persons, were published and approved in the primitive times. But as Mr. Toland, in his Aymont, published in the same year, avowed his belief of
the genuineness of the books of the New Testament, Mr. Blackall cited the dispute by the publication of a small pamphlet in 1790, entitled "Reasons for not replying to a book lately published, entitled "Antimony." In 1790 he
preached a course of sermons at Boyle's Lecture, published in
the first volume of the collection of those sermons. In
1797, he was promoted to the see of Exeter; and in
1799, he was engaged in a controversy with Hoadly, con-
cerning the institution of civil government, and the mea-
sures of submission. With respect to this controversy it is
sufficient to observe, that the bishop defends the high-church,
tory principles, as they are usually called, of the divine in-
ituation of magistracy, and unlimited passive obedience, and
non-refinance, which Hoadly opposes. This pretext, whose
private character, and style of preaching, are highly extolled
by Sir William Dawes, archbishop of York, in the preface
to his sermons, died at Exeter, Nov. 29th, 1716. His ser-
mons were collected and published in 2 vols. folio, Lond.

BLACKAMOOR'S HEAD, in Chemistry, consists of a conical vessel, surrounded with another of a cylindrical form, filled with cold water, and having a cock to draw it off, when it is become too warm. Both vessels are made of copper. In the figure, one half is left open to show the cone; the inclination of the sides of which, according to Chaptal, is most proper, when forming an angle of 75 degrees with the base. See Plate of Chemistry.

BLACKBALL HEAD, in Geography, a cape on the S.W. coast of Ireland, at the north side of the entrance into
Bantry bay in the county of Cork. N. lat. 51° 32'. W.
long. 9° 55'. McKenzie and Beaufort.

BLACKBURN, William, in Biography, an eminent
surveyor and architect, was born in Southwark, Dec. 20,
1750, and having acquired some knowledge of his pro-
fession, in the ordinary course of education, he was admitted
a student at the Royal academy. By this academy he was
prevented in 1773, with the medal for the belt drawing of
the inside of St. Stephen's church in Walbrook; and the
delivery of it by the president, Sir Joshua Reynolds, was
accompanied by a distinguished tribute of respect to his abili-
ties. About this time he entered into busines in the place of
his nativity; but a circumstance occurred in a few years
which served to establish his reputation, and to introduce
him into very general notice. In 1779 an act of parliament
was passed for the erection of places of confinement, under
the denomination of 'penitentiary houses.' Two edifices of
this kind were proposed to be erected; one for the confinement and employment of 620 males, and the other
for the accommodation of 350 females. The three super-
visors first authorized by his majesty for carrying into effect
the provisions of this act, were John Howard esq., George
Whiteley esq., and Dr. John Fothergill. The death of Dr.
Fothergill, and the resignation of Mr. Howard, dissolved
this commission; and the charge was devolved, in 1781, on
Sir Gilbert Elliot, Sir Charles Bunbury, and Thomas Bow-
ler esq. The principal object of the plan proposed was to
combine, in the buildings to be erected, solitary confinement,
with useful labour and moral reformation. Accordingly
promises were made to those who should produce the
belt plans. The highest premium of 100 guineas was unani-
mosly assigned, in 1782, to Mr. Blackburn. In con-
sequence of this distinction, he was appointed by the super-
visors to the office of architect and surveyor of the projected
buildings. The designs of government, after several pre-
paratory steps had been taken, were never accomplished.
However schemes of a similar kind were projected in various
parts of the country, and the execution of them was en-
trusted to Mr. Blackburn. Whilst he was busily employed in
the completion of various designs of this kind, and whilst
he was prosecuting a journey to Scotland, for the pur-
pose of erecting a new gaol at Glasgow, he died suddenly, Oct.
28th, 1790, at Preston in Lancashire; and his remains were
removed to London, and interred in the burying ground of
Bushell-fields.

Mr. Blackburn's skill as a draughtsman and an architect,
was not confined to prisons and penitentiary houses; but
he was occupied, as far as his time would allow, in prepar-
ing various designs for churches, houses, villas, &c.; and in
his drawings and designs he always manifested a correct
taste, and a thorough knowledge of the science to which he
was practically devoted. His friends, and the public in
general, very justly lamented, that by the corpulence to
which he was inclined from his early youth, and the increase
of which no ablution, nor any mode of regimen, would
restrain, he was removed from a scene of usefulness and re-
putation, at too early a period as the 40th year of his age.
As to his religious profession, he was a protestant dissent
of the presbyterian denomination; but he, combined with an
undistinguished and unadulterated avowal of his own sentiments, the
most liberal and candid opinion and conduct with respect to
all who differed from him. In his natural temper he was
cheerful and lively; in his conversation agreeable, animated,
and instructive; in his private character amiable and respecta-
able; and in all the relations and intercourses of domestic
and social life, esteemed and honoured. In 1783, he
married the daughter of Mr. John Habeon, an eminent builder,
of the denomination of quakers, by whom he left four
children.

BLACKBURN, in Geography, a town of Lancashire, Eng-
land, is seated in a valley surrounded with hills. It consists
of several streets, irregularly laid out, but intersected with
good houses. Befides the parish church, here are a newly
erected chapel of the establishment, and five places of
worship for so many different sects of dissenters. A free-school
was founded by queen Elizabeth, and the necissitous poor
of the town are comfortably provided with a poor-house,
which has land attached to it for the pasturage of cattle.

The market, on Mondays, is chiefly supplied with pro-
visions from Preston. Befides this, here are a fortnight
market for cattle, &c. and an annual fair. The town is
approached by four stone bridges crossing the river Derwent,
whole water, being of rather a blackish hue, is laid, by
the writers, to have given name to the town. Blackburn
has been noted for its manufactures, particularly for an
article called Blackburn-grey, which were plains of linenc-warp
flot with cotton. The prosperity of Manchester, and the
great influx of manufacturers to that town and its neigh-
bourhood, have deprived Blackburn of its usual trade; yet
some cottons, callicoco, and muslins are still made here; and
the fields around the town are frequently covered with ma-
terials to bleach.

The church of Blackburn, previous to the reformation,
was attached to the abbey of Whalley. It is now a recol-
yered, policed by the archbishop of Canterbury, who also owns
half of the town, which he lets on leases of 21 years. The
parish church of Blackburn includes 22 townships, and embraces
about a half the hundred of the name. The land round
the town is mooldy, a sandy soil, and consequently unprop-
tious to agriculture. Coal is found in the southern part of
the parish, and in great plenty at Darwen, about four miles
south of the town. An alum mine was found, and much
worked over, in the time of Fuller, but from the depth of
the strata, and consequent expense, it was afterwards neg-
lected. Sir George Colebrook, willing to monopolize all the
BLA

alam of the country, purchased this, with other mines; but failing in his unjust speculations, was obliged to relinquish the works at Blackburn. (See Alum.) Blackburn contains 2,532 houses, 11,980 inhabitants, and is 211 miles N.W. from London. Aitkin's description of the country round Manchester, 180. 1795.

BLACKBURN, the name of a river in Scotland celebrated for its romantic cascades, for the bold and picturesque scenery adorning its banks, and for a singular natural bridge which stretches across the stream, in the parish of Cartfon. The latter is deemed one of the greatest curiosities in Scotland. "It is 55 feet long, 10 feet wide, and the thickness of the arch is two feet four inches of solid stone. It is not composed of one entire rock, but has the appearance of many flakes of about one foot and a half square, set neatly together. The bridge slopes a little downwards, and the water rushes under the arch, through an opening of 31 feet. Among the cascades, which ornament and enliven this stream, is one of above 37 feet in height, and 20 feet in width; another 31 feet high, and 36 feet broad; and a third 27 feet in height. These waterfalls, combining with the romantic character of the rocks, and the constant roar of the dashing stream, present a great number of highly picturesque and interresting scenes. In this wild and romantic vale, nature appears in various forms, now beautiful, then awful, sometimes sublime, and frequently terrible." Sir John Sinclair's Statistical Account of Scotland, vol. xi.: communicated by the Rev. Mr. Arkle.

BLACKBURNE, Francis, in Biography, a clergyman of the church of England, distinguished by his firm attachment to the cause of civil and religious liberty, and by his zealous exertions in the promotion of it, was born of respectable parents at Richmond, in Yorkshire, on the 9th of June 1705. Having pursued a course of classical education, first at Kendal in Westmorland, and afterwards at the free schools of Hawkhead in Lancashire, and of Sedbergh in Yorkshire, he was admitted, in May 1722, penitent of Catherine hall, in the university of Cambridge; where he took the degree of bachelor of arts, and was chosen conduit or chaplain-fellow of the society; and on this title he was ordained deacon in March 1728. At this time he flattered himself with the expectation of a foundation-fellowship; but his avowal of sentiments with regard to ecclesiastical and civil liberty, which he had acquired by the perusal of the writings of Locke, Hoadly, &c. rendered him obnoxious to a majority of the fellows, who, being high royalists on the principle of hereditary right, set aside his just claims as the only qualified candidate, and precluded his election, by indulging Mr. Addenbrooke with an extraordinary year of grace, and thus keeping the fellowship full. This disappointment induced him to resign his conduitship, to quit the university, and to live in retirement with his uncle, Thomas Comber, esq. of East Newton, near Helmsley in Yorkshire, till some church preferment might occur. His views, indeed, were particularly directed to the living of Rich- mond, the place of his nativity; to which he was inducted upon the death of the incumbent in 1739, having previously qualified himself for it by taking prebend's orders. During the interval of his retirement at East Newton, he eacually found some old books that had formerly belonged to his great grandfather, an ovarian justice; and by the perusal of these he was led to entertain favourable sentiments of the manners and principles of many excellent old puritans, to admire their unaffected and disinterested piety, and their zeal for the spiritual good of mankind, and to cherish that moderation and liberality of temper, and that ardent concern for liberty, which distinguished his future conduct. As soon as he was invested with a parochial cure, he devoted himself with exemplary diligence to the studies and duties appropriate to his pastoral office, which he discharged, during a residence among his parishioners of 48 years, no less to their satisfaction and improvement than to his own honour. His first appearance as an author was in the year 1742, when he published an "Afflzet Sermon," preached at York. About the same time he wrote two pamphlets concerning the illegal removal of the conliliary court and its records from Richmond to Lancaster, which, in consequence of a petition from the mayor and corporation to the bishop of Chester, were restored. In 1748, he employed a young person, who was his curate, to translate Erasmus's preface to his paraphrase on the gospele of St. Matthew; and having written "A Preliminary Discourse addressed to the Roman Catholic gentry and laity of Great Britain," he circulated a cheap edition of it, recommending it to the public, partly as an antidote against popery, but chiefly as an encouragement to the common people to be diligent in reading the scriptures, for the information and improvement of themselves and families in Christian knowledge and Christian piety. It was not, however, till the year 1750, that Mr. Blackburne began to distinguish himself as a writer in defence of Christian liberty. A work had been published in the preceding year, intitled "Free and Candid Disquisitions relating to the Church of England." This work contained many pertinent observations on existing defects and improprieties in the established forms of the church, and propounded for revising the liturgy, and amending such passages, as were liable to reasonable objections. Mr. Blackburne was satisfied with many, who were acquainted with his sentiments on the subject of an ecclesiastical reform, to have had a concern in this publication. But though he had corresponded with the compiler and editor of it, and had seen the greatest part of the work in manuscript, he had neither written nor suggested a single line or word. Indeed, he disapproved the style and spirit of it; and thought them by no means adapted to the occasion, nor likely to produce effect. "He was rather perhaps too much (says his biographer), inclined to look upon those who had in their hands the means and the power of reforming the errors, defects, and abuses in the government, forms of worship, faith and discipline of the established church, as guilty of a criminal negligence, from which they should have been roused by sharp and spirited expoliations." Nevertheless, he thought it his duty to repel the attacks of the adversaries of this work; and accordingly, he published, without the knowledge of its editor, or any of his more confidential associates, an "Apology for the Authors of the Free and Candid Disquisitions," 1750. But though he engaged in this controversy, his attention was not diverted from parochial duties; for his next publication was "A Short Discourse on the Nature, Obligation, and Benefits of Family Religion," which he published at his own expense, and distributed among his parishioners. In this same year 1750, notwithstanding the publication of his "Apology," he was collated to the archdeaconry of Cleveland, and also to the prebend of Bilton, by Dr. Matthew Hutton, then archbishop of York, to whom he had been for some years titular chaplain. Towards the close of the year 1752, he had an opportunity of perusing the charge delivered by Dr. Butler, bishop of Durham, to the clergy of his diocese at his private visitation in 1751; and he found in it some doctrines which were, in his opinion, so diametrically opposite to the principles on which the protestant reformation was founded and supported, as to deserve being exposed and cenured, in order to prevent the mischief which they might do under the sanction of his name. Accordingly, he wrote six strictures upon them; and, in opposition
to the reminiscences of a friend who diffused him from publishing them, lest they might be the means of preventing his further preferment, he committed them to the press under the title of "A Serious Enquiry into the Use and Importance of external Religion, &c." This piece, which was afterwards printed by Mr. Baron, in the 4th volume of a collection of tracts, entitled, "The Pillars of Prielecraft, and Orthodoxy shaken," and ascribed to him as its author, gave great offence, particularly to archbishop Secker, and precluded all hopes of preferment in the church, if indeed he had indulged any such hopes, under episcopal patronage. The next subject of importance, which engaged his attention, was the doctrine of an intermediate state. To this he was led by an "Appendix" to Dr. Law's "Considerations on the Theory of Religion," which appeared in 1755, and which inculcated the tenet of the sleep of the soul. This opinion was attacked from several quarters, and particularly by Dr. Goddard, master of Charter-hall, in a sermon preached at St. Edmund's Bury. Mr. Blackburne defended his friend Dr. Law, in a publication entitled "No Proof in the Scriptures of an intermediate state of happiness or misery, between death and the resurrection." He also published several other pieces on the same topic; such as "Remarks on Dr. Warburton's account of the sentiments of the early Jews concerning the soul," and "A Review of some pamphlets in the last edition of the Divine Legation of Moles demonstrated," which appeared in 1759, and may be considered as a sequel to the "Remarks." He also prepared a reply to Dr. Morton, Mr. John Steffe, and Dr. Caleb Fleming, who had published tracts on Dr. Law's Appendix; and he purified the discussion of the subject more at large in a work, first published in 1763, and afterwards with considerable additions in 1774, and entitled "A Short Historical View of the Controversy concerning the intermediate state between death and the resurrection, with a prefatory discourse on the use and importance of theological controversy." In 1759, our author published "Some Sentiments of a country divine concerning the Ordinance of Baptism, &c." occasioned by letters which passed between bishop Clayton and Mr. Penn on that institution. In the correspondence between these writers, a difficulty occurs in the interpretation of the charge given by our Lord to his apostles. Matt. xxviii. 19. Our Lord, it is said, prescribes one precise form of words to be used in baptism; the apostles appear, from the Acts and Epistles, to have used another; and the evangelists Mark, Luke, and John, do not mention any precise form whatever. Various hyp thesis have been proposed by Groseby, Limborch, Lightfoot, Whitby, Clayton, &c., for reconciling the practice of the apostles with the precept of Christ. Mr. Blackburne, diffidently, with all their suggestions, that the words in question contain no baptismal form at all; and that we should rather follow the apostolical form in Acts, as being derived to us by the authority and example of men, who must be perfectly satisfied that the foundation they built upon was found and good. Accordingly, he proposes that we should read the passage in St. Matthew thus: "Πάντες οι ἀνεποίητοι τού Ἰησοῦ Χριστοῦ, ἐποίησαν στίχον: Χριστῷ τῷ παῖς, και τῷ κυρίῳ, και τῷ πνεύματι ἑως τῆς ἀποκάλυψεις." Go ye therefore, and disciple all nations (baptizing them) into the name of the Father, and of the Son, and of the Holy Ghost." By construction and parenthesis, the command to baptize refers to no particular form at all, and leaves us to suppose, what was certainly the truth of the matter, that the apostles being already well acquainted with the form used in the baptism of Jesus, it was quite superfluous to explain it here.

In 1758, Mr. Blackburne avowed the sentiments which he had for some time entertained concerning subscription to the liturgy and articles of the church of England, in "Remarks on the Rev. Dr. Powell's sermon in defence of subscriptions, &c." presented in the preceding year before the university of Cambridge, to which is prefixed "An Adress to the younger students in both our universities." The subject of subscription had indeed for some time engaged his attention; and it was not without scruples that he had qualified himself to hold the archdeaconry and prebend in 1750; but when he had reason to expect further advancement in the church, he refused the consideration of the subject, and the result was a determination never to renew his subscription. About this time he began to make collections for his famous work entitled "The Confessional, or a full and free Enquiry into the right, utility, and success of establishing Confessions of faith and doctrine in Protestant churches." This work, in the execution of which he was much encouraged by Dr. Edmund Law, afterwards bishop of Carlisle, lay by him manuscript for several years, and was at length published in 1766, 8vo, without his name. It excited, as we may naturally imagine, very general attention both among the partisans of reform and the advocates for existing establishments. A second edition appeared in 1772; and the controversy, which it occasioned, lasted for some years, and produced a great number of publications. The third edition, corrected and much enlarged, was published in 1770; and to this edition has been added from the author's manuscript, in the late collection of his works, an appendix, containing a short history of the confessions established in the church of Scotland at different periods. For a further account of the subject of this work, and of the arguments for and against subscription, see Subscription. Soon after the publication of the third edition of the "Confessional," the author was induced by several of his friends to draw up and publish "Proposals for an application to parliament for relief in the matter of subscription to the liturgy and thirty-nine articles of the established church of England; humbly submitted to the consideration of the learned and conscientious clergy of the said church." An association was formed for this purpose, for the result of which, see Association.

It was natural to imagine, that the author of such a work as the "Confessional," written with a view of examining and refuting the federal pleas that had been urged in favour of subscription, and which had convinced many persons of the insufficiency of these pleas, would have wished to withdraw himself from the established church, which imposed a subscription that appeared to him to be unjustifiable; and accordingly, as the death of Dr. Chandler, in 1766, occasioned a vacancy in the respectable congregation of dissenters at the Old Jewry, in London, some individuals of that society applied to Mr. Blackburne for information, whether such a situation would be agreeable to his views, if it were offered to him. But, with the prospect of a very considerable addition to his income, he declined accepting the proposal, for reasons that were very fatal to those who made it. The clear amount of all that he possessed, as a beneficed clergyman, never exceeded the sum of 150l. a year; whereas, if the removal that had been suggested to him had taken place, his income would have been nearly trebled. Some other circumstances also afterwards occurring, which had a tendency to detach him from the established church. Two very respectable clergymen, immediately connected with his own family, viz. the learned Mr. Theophilus Lindsey, whose excellent character those who are well versed in his theological opinions concur in applauding, and his son-in-law, Dr. Disney, no less esteemed by all who know him, surrendered their preferments, because they disapproved the doctrines and forms of the established church.

3X
Mr. Black-
Mr. Blackburne, however, though he agreed with his valued relatives in many of their objections to the liturgy and articles of the church, differed from them with regard to several doctrinal points of importance; and without seeming to advert to his past subscription, in consequence of which he still held his church prebends, he satisfied himself with refusing any further prebend, which was actually offered to him, because he was determined not to renew his subscription. His constancy in the church cannot be justly ascribed to any selfish and interested motives, because he might have left it with advantage, and he remained in it with a fixed purpose of accepting no prebend; and he refused very considerable offers of this kind. But, in order to vindicate his constancy, he thought it right to avow his motives for continuing minister in the church, while he disapproved many things in her doctrine and discipline; and with this view he drew up a short paper containing "An Answer to the question, Why are you not a Socinian?" and also his reasons for officiating in a church, whose forms of faith, worship, and discipline, he thought to be in many things highly exceptions. Those who with for faction on these points, are referred to the Appendix annexed to the Memoirs of his Life, p. 130. We shall content ourselves with observing, that Mr. Blackburne was a firm believer of the pre-existence of Christ, and that he also maintained his divinity, with limitations according to his own ideas, which he believed to be founded on the Scriptures; and with regard to the general sentiments of his creed, he is said to have more than once declared himself a moderate Calvinist. Whatever may be the inconsistency which some persons have charged upon his conduct, he manifested his election for the church, not only by continuing his own connection with it, but by educating a son for the clerical office, though the condition of performing any duties, or enjoying any emoluments in that church, was subscription, the imposition of which he had strongly repudiated and condemned. On this subject the further discussion of which would lead us beyond our province as biographers, we shall only say, "Let every one be fully persuaded in his own mind; to his own master let each one answereth."

Being accompanied from early life to regard the Roman C. tholes as dangerous foes to the government and religion of his country, Mr. Blackburne, notwithstanding the enlarged and liberal sentiments acknowledged by him on all other occasions, wrote against them with a vehemence which the friends of freedom have generally condemned. But an alarm with regard to the spread of popery, and the evils to be apprehended from it, prevailed very much at the time; and this induced him, in 1768, to publish a caution against it, under the title of "Considerations on the present state of the controversy between the Prot: and Papists of Great Britain and Ireland, particularly on the question, how far the latter are entitled to toleration upon Protestant principles."

"During the intervals of his other professional and literary engagements, he employed his self in collecting materials for the life of Martin Luther, which he proposed to write according to the pattern of Dr. J. R. N. of Erasmus; but he was diverted from accomplishing his design, first by the death of his friend Thomas Hollis, esq. of whom he published "Memoirs." in 2 volumes 4to. in 1750. and afterwards by the loss of his second son Thomas, in 1782, a physician of rising eminence in the city of Durham, which so affected him as to render him incapable of finishing several things which he had undertaken. Soon after his eye-sight failed him, and he was under the necessity of employing an amanuensis. His mind, however, was still enterprising and active; nor was he prevented by the increasing infirmities of age from prosecuting the object of ecclesiastical reformation, which seems to have occupied his thoughts to the latest period of his life, and from performing his professional duties. Having in the last year of his life prepared a charge for his 5th annual visitation in Cleveland, he caused it to be delivered by his eldest son, who flourished by him, and then took leave of his clerical brethren, with an address equally pious and affectionate, that must have deeply impressed the minds of all who heard it. At the close of his visitation circuit, he was taken ill at the house of a friend, and apprehensive of approaching dissolution, hastened to his rectory at Richmond with all the expedition which the state of his health allowed. Within a few weeks after his return, on the morning of August 7th 1872, in his 83d year, he finished the profound course of a studious and exemplary life, with the sentiment of the amiable Erasmus, and the benevolent Justin, "I have had enough of every thing in this world, and expired, as he sat in his chair, without a groan. He left a widow, who died August 20th 1793, and four children; viz: Jane, married to the Rev. Dr. Disney, now minister of the Unitarian society in Effex-street, London; the Rev. Francis Blackburne, vicar of Brignal, near Greta bridge, Yorkshire; Sarah, married to the Rev. John Hay, vicar of Chew Magna, and rector of Dundry in Somersetshire; and William Blackburne, M. D. of Cavendish square, London. Few persons have ever been more regular and afforded in the performance of professional duties, whether we consider him as a parish priest, or as an architecton, than Mr. Blackburne. Possessing naturally a strong constitution of body, and great firmness of mind, which he preferred by temperance to a very advanced period, he was capable of industry and continued application. He was likewise animated in the discharge of his clerical duties by a conviction of their importance, and by an ardent desire of promoting the best interests of those with whom he was connected. In composing for many years new discourses, whenever he offered, and also charges for his archidioecesan visitations, and in preparing for the press a variety of publications, a great part of his time must have been spent in study and retirement; and hence he is said to have acquired the appearance of austerity; nevertheles with his intimate friends and associates he was cheerful and unreserved. As a writer he was nervous and animated; and his public discourses were delivered with an unaffected earnestness, which proceeded from conviction of the importance of religious truth and duty, and which interested and impressed those who heard him. In his controversial writings, it must be acknowledged, and he himself lamented it towards the close of his life, that he was occasionally betrayed into precipitation of judgment and asperity of language; but it should be recollected, that he contended with a host of adversaries, whose mode of attack sometimes provoked and justified his resentment; and that his vehemence and ardour were always accompanied with a high sense of integrity and honour, and a laudable solicitude for serving what he conceived to be the cause of truth and liberty. The topics of his numerous publications, the principal of which we have above recited, were chiefly theological or controversial; nevertheles he was an occasional writer on political liberty, and he largely contributed to a collection of letters and essays on this subjed, published in 3 vols. 8vo. 1774. A collection of his "Works, theological and miscellaneous, including some pieces not before printed, with the account of the life and writings of the author, by himself, completed by his son Francis Blackburne, L. L. D. and illustrated by an appendix of original papers," has this year (1804) been published in 7 vols. 8vo. The following remarks..."
spectable and just tribute to his memory closes his son's account of his life and writings: "Such was Francis Blackburne; a believer of Christ and of the deep conviction of his truth;..." 


Eff. char. Cal. four-toothed; pet. four. elliptic; anh. heart-shaped; germ conic; stigma simple. Pcr. berry, with a single seed.


BLACKBURNIA, in Ornithology, a species of Motacilla, described in the Arctic Zoology under the name of the blackburnian warbler. The crown is black, with a yellow line in the middle; and through or across the eye black, as are also the, upper wing covers; greater wing-coverts. Vent and lateral tail-feathers white, the middle ones being dark; sides of the neck, chin, and middle of the belly yellow. A native of New York.

BLACKHEAD, in Geography, a cape on the east coast of Ireland, at the north entrance into Belfast Lough. N. lat. 54° 45'. W long. 5° 23'.

BLACKHEAD, a cape on the western coast of Ireland, in the county of Clare, on the south side of the entrance into Galway bay. N. lat. 53° 7'. W long. 9° 11'.

BLACKHEAD, a cape on the south coast of Ireland, within the head of Kinsale, and on the west side of Kinsale harbour. N. lat. 51° 38'. W long. 8° 30'.

BLACKHEAD, a cape on the west coast of Scotland, in the county of Wigtoun; 6 miles W.S.W. of Stranraer.

BLACKHEAD, a point of land between Falmouth haven and the Lizard point. - Also, one of the peaks between Fermoye's harbour on the east coast of Newfoundland, and Augus fort; Bald head being the other. - Also, a point on the south coast of Newfoundland, west of cape Race, and half a league further west from cape Pine. - Also, a point on the east coast of the northern island of New Zealand, N.N.E. of cape Turnagain, in about 40° 18' S. lat.

BLACKING, in the Arts, &c. is sometimes used for a faciitious black, a lamp-black, shoe-black, &c. A mixture of ivory or lamp-black with linseed oil, makes the common oil-blacking. For a flaming blacking, small beer or water is used instead of oil, in the proportion of about a pint to an ounce of the ivory black, with the addition of half an ounce of brown sugar, and as much gum Arabic. The white of an egg, substituted for the gum, makes the black more shining; but is supposed to hurt the leather, and make it apt to crack.

In 1771, a patent was granted to Mr. William Basley for preparing a composition in cakes, rolls, or bals, which, with the addition of water only, makes an excellent flaming liquid blacking for shoes, boots, &c. The recipe for this purpose is as follows: Take one part of the gummy juice that issuing, in the months of June, July, and August, from the shrub called the goat's thorn, four parts of river water, two parts of neat's head, or some other softening lubricating oil, two parts of superfine ivory-black, two parts of deep blue, prepared from iron and copper, and four parts of brown sugar-candy. Evaporate the water; and, when the composition is of a proper consistence, let it be formed into cakes of such a size, that each cake may make a pint of liquid blacking.

BLACKLOCK, Thomas, in Biography, was born in 1721, at Annan in Scotland, of parents, who were natives of Cumberland, and who occupied a humble station. At the age of 6 months he was deprived of his sight by the small-pox; and thus becoming incapable of any mechanical employment, he was in the probable cause of nature destined to be a perpetual charge to his parents. His disposition, however, as he advanced towards maturity, engaged the most affectionate attention; and the kindliness of his father was such as to impress his youthful mind, and to engage expressions of ardent gratitude. The powers of his mind were no less distinguished than the amiable habits of his temper; and he improved the actual opportunities of cultivating them, which were afforded him by the attention of his father and friends, who read to him several passages out of English authors, and particularly from the works of our most approved and popular poets. Thee he heard with avidity and delight; and at the early period of his 12th year, he began to imitate what he admired. His performances, as he advanced towards maturity, became the subjects of general conversation; and having the misfortune to lose his father in his 19th year, he was invited, at the age of 20, by Dr. Stephenfon, physician at Edinburgh, to remove thither and to pursue his studies at the university. Notwithstanding the personal disadvantages under which he laboured, he made very considerable progress in the Latin, Greek, and French languages; but upon the breaking out of the rebellion in 1745, his studies were interrupted, and he retired into the country. On this occasion he was solicited by his friends to publish a small collection of his poems at Glasgow. When the tumult of the rebellion forbade, he returned to Edinburgh, and to the prosecution of his studies for 6 years more, during which period he not only perfected himself in the languages, but made considerable progress in all the sciences, and particularly in polite literature. In 1754, he published a second edition of his poems, much improved and enlarged; and thus gained the patronage of Mr. Spence, who in his account of his life, character, and poems, brought him into general notice. By means of a subscription to a 4th edition of his poems, his circumstances were rendered easy and comfortable; and applying himself to the study of theology, he passed the usual trials, and was licensed in 1759 to be a preacher by the presbytery of Dumfries. From the discharge of the duties of his office he derived great satisfaction and reputation. On the alarm of a French invasion in 1761, he published a discourse "On the right improvement of time;" and in the same year he contributed some poems to the first volume of Donaldfon's collection of original poems. In 1762 he formed a matrimonial connection, which he regarded as the chief source of the felicity of his future life. About this time he was ordained minister of Kirkcudbright, on the presentation of the Earl of Selkirk; but in consequence of some litigations that ensued, he
thought it most expedient, within two years, to resign this preferment, and to retire upon a moderate annuity. With this slender provision he removed in 1674 to Edinburgh, and opened his house for the accommodation of young persons as boarders and students. In 1765 the medical school of Aberdeen conferred upon him the degree of doctor in divinity. From this time he continued to maintain his literary character by several publications, which it will be sufficient to enumerate. There were, "Paradisus, or Collections deduced from natural and revealed religion," in two dissertations, 8vo. 1753; "A Discourse on Great Britain," a satirical piece, 8vo. 1773; "The Graham, an heroic ballad, in four cantos," 1774; "Remarks on the nature and extent of liberty, &c. and on the justice and policy of the American war, occasioned by perusing the observations of Dr. Price on these subjects," 8vo. 1776; and a valuable article, communicated to the editors of the Encyclopaedia Britannica, "On the education of the blind," 1783. A 4to. edition of Dr. Blackock's poems was printed in 1793. This edition contains an essay on the education of the blind, being a translation of M. Hailly's celebrated essay on this subject; and prefixed to it we have a new account of the life and writings of the author by Mr. Mackenzie, author of the Man of Feeling, &c. Dr. Blackock died at the age of 70, in July, 1791. With respect to his talents, Mr. Hume observes, "that he may be regarded as a prodigy;" and to his moral character he bears this honourable testimony, that "his modesty was equal to the goodness of his disposition, and the beauty of his genius." In the depressed circumstances of his early life he was singularly contented and acquiescing; but his loss of sight deeply affected his sensibility, and he deplores it in plaintive accents in one of his poems, written on occasion of his escape from falling into a deep well. At the same time he was drenched with apprehensions of falling into extreme indigence; however he expresses his trust in Providence, and his hope that the clouds which were gathering over him would be diffipated. Next to his religious principles, were letters, conversation, and music, from which he derived his principal felicity. His poetry is easy, elegant, and harmonious; and abounds with images, deduced from visible objects, and aptly applied. He is said to have composed with rapidity, and hence it is owing that his vivacity and animation are often indulged in the expense of correctness and regularity. In sentiment he displays much benevolence and tenderness of disposition, as well as true piety and philosophy. Spence, ibid. /spra. Gen. Biog.

BLACKMORE, SIR RICHARD, M. D., an indefatigable writer, poet, and physician, was born at Corsham in Wiltshire, about the year 1652. After some years spent at a grammar school in the country, he was sent to Westminster school, and in 1668 to Edmund-hall, Oxford. In 1676 he took his degree of master of arts, and continued to reside at college three years after, but apparently without receiving much benefit from his long residence in this feast of the muses, scarcely knowing the names or situations of places, which an intimacy with classical authors must have made familiar to him. At some time in his life, probably immediately on quitting college, he kept a school, but does not seem to have remained long in that situation, as he soon after went to Paris, and to other places on the continent, with a view, it is probable, of acquiring or improving his knowledge in medicine, in which faculty he took his degree of doctor at Padua. Returning to England, after a ramble of eighteen months, he came to London, and settled at first in Cheapside, where he acquired to much reputation, that in 1697, he was admitted a fellow of the college of physicians. In 1697, he received the honour of knighthood from king William, accompanied with a present of a gold chain and medal, which, he intimates, were given him as a reward for some services performed at the revolution. The same year he was made physician in ordinary to the king; an office he held afterwards under his successor, queen Anne. He was now in the zenith of his reputation, and having as yet but little exposed himself to the fury of the critics by writing, his merit was probably rated much beyond its real standard. To his popularity as a physician, and his excellent and unimpeached moral character, it was probably owing that his first production, "Prince Arthur," an epic poem, in ten books, published a little before this time, acquired so much celebrity as to pass through three editions in the space of two years. Encouraged by this success, in 1699 he published his "King Arthur," in twelve books, with paraphrases on the book of Job, and on other parts of scripture; and in 1700, his "Satire on Wit," in which he took occasion to retort the farcifias which had been heaped with no sparing hand on his last poems by Denis, Dryden, Pope, and most of the wits of the time. Not deterred by their censures, in 1705 he published "Eliza," another heroic poem, in ten books. "This excited," Johnson says, "neither praise nor blame, but seems to have dropped dead born from the press." In 1712, appeared "Creation," a philosophical poem, certainly the belf of his productions. It had the honour of being praised by Addison, in the Spectator, and Dr. Johnson has since inferred it in his collection of English poets, with commendation much beyond its merit. This for a time revived its credit, and gave it a degree of celebrity, which seems again to be declining. Pleased with the reputation procured by this poem, he soon after produced his fourth and last epic poem in twelve books, intended to commemorate the actions of king Alfred, whose name it bore, but like Eliza, excited little notice; benevolence being ashamed any longer to patronize, and malevolence weary of inflicting, such frigid ablations. But as it was to be the late of this author to try every species of writing, and to fail in all, on the Spectator evening, he produced, in conjunction with Mr. Hinges, the "Lay Monastery;" one paper of which was published three times in the week. This was only continued to the 46th number. Soon after he gave the world two volumes of essays. As these were intended to promote the cause of virtue and religion, they met with some favour. Besides these works, Dr. Blackmore wrote several tracts on different branches of medicine; on the spleen, the gout, the rhumatism, the king's evil, the dropsy, the jaundice, the diabetes, the plague; and as inculcation for the small-pox was making some progress in his time, he thought it incumbent on him to give his decided disapproval of the practice. But as by this time he began to be esteemed scarcely a better physician than a poet, his opinion had fortunately very little weight with the public. The medical tracts are published together in an 8vo. volume, but are little known or noticed. He died on the 8th of October, 1729. Gen. Biog. Johnsooke Lives of the Poets.

BLACKNESS, the quality of a black body; or a colour arising from a texture and situation of the superficial parts of the body, which, as it were, flitte, or rather absorb, the light falling on it, without reflecting any, or very little of it, to the eye. In which case, blackness stands directly opposed to whiteness; which confinits in such a texture of parts, as indifferently reflect all the rays thrown upon it, of whatsoever colour they be.

Defeartes, says Dr. Priestley (Hist. of Vision, p. 127 and 143, &c.), though mistaken with respect to the nature of light and colours, yet distinguished jullly between black and white, observing, that black absorbs and extinguishes the
rays that fall upon it; but that white reflects them.
This, adds the historian of philosophy, is the first distinct
account I have met with of this tenable hypothesis. Mr. Boyle,
also made several observations and experiments, which de-
montate his theory in a very satisfactory manner. See
BLACK.
Sir Isaac Newton, in his Optics, shews, that for the pro-
duction of black colours, the component parts must be less
than those which exhibit any other colours; because, where the
sizes of the component particles are greater, there is too
much light reflected to constitute this colour; but, if they
be a little less than requisite to reflect the white and very
faint blue of the first order, they will reflect so little light,
as to appear intensely black; and yet may, perhaps,
reflect it variously and so within them so long, till
it happen to be it shed and lost; by which means they
will appear black in all positions of the eye, without any
transparence.
And hence it appears, why fire and putrefaction, by
dividing the particles of substances, turn them black: why
small quantities of black substances impart their colour very
freely, and intensely, to other substances, to which they are
applied; the minute particles of these, by reason of their
very great number, easily overpowers the great particles
of others. Hence also appears, why glass, ground very
excellently with sand, on a copper plate, till it be well po-
lished, makes the sand, together with what by rubbing is
worn off from the glass and copper, become very black; and
why black substances do, soonest of all others, become
hot in the sun's light, and burn (which effect may proceed
partly from the multitude of refracted actions in a little room,
and partly from the easy motion of such very small particles):
also, why blacks are usually a little inclined towards a blueish
colour; for that they do so are seen by looking white paper with light reflected from black substances, where
the paper will usually appear of a blueish white; and the
reason is, that black borders on the obtuse blue of the first
order of colours; and therefore reflects more rays of that
colour than any other.
BLACKIE, Alexander, in Biography, apothecary,
a native of Scotland, published in 1766 a dissertation on
medicines that diffuse the flame, in which Dr. Chittick's
secret is laid open, 12mo. It was reprinted in 1771, with
additions. He found the solvent to be the luvian poto-
narium, which may be given, he says, advantageously, mixed
with lime water, even when blood is voided with the urine.
When the bladder becomes ulcerated, wounded by the
asperities of the stone, he recommends the parcrea brava and
vina udi. When pain in the loin or pubis is violent, he gives
opium; and he has known, he says, persons vomit stones
in their sleep, while taking that drug. Persons who vomit
sand or gravel with their urine, are never affected, he says,
with the stone. Haller, Bib. Chirur.
BLACKS, Negroes; a people so called from the colour
of their skin. For the reason of their colour, and the com-
merce of them, see Negro.
BLACKS, de a name given to an association of disorderly
and ill-atoning persons, formerly herding chiefly about
Waltham, in Essex, who destroyed deer, robed fish-ponds,
ruined timber, &c. See BLACK a.d.
BLACKSOD BAY, in some old maps erroneously called
Black harbour, in Geography, a large bay lying between the
peninsula of the Mullet, and the main land of the county of
Mayo, Ir'ld, to the south of the Mullet. It is well
sheltered, the ground in most parts clean, and sufficiently
deep for large ships; but the ground being a hard sand, it
is not thought that it will hold well in hard gales from the west
and south-west, especially in the winter time. It is 2$ miles
wide at its entrance, and runs about 9 miles inland, with
several creeks communicating with it, of which those within
Barnacle island, and the point of Clew, are the most remark-
able. The south-west point of this bay is in N. lat. 54° 6'.
W. long. 5° 55'. Mr. Blackstone, &c.
BLACKSTONE Point, the southern point of the Muller, a
peninsula in the western part of the county of Mayo, Ire-
lund, which forms the western extremity of Blackford bays,
N. lat. 54° 6'. W. long. 5° 55.'
BLACKSTONE, J. in Biography, apothecary, of whom
nothing is known, but that he published, in 1737, "Palaegeus
Plantarium, circa His~field, fpo peascentium, cum Appen-
disse ad loci naturam frequentes," 8vo. London. Among many
common, some very rare plants were discovered by this
author, and are described in this volume. He also published,
in 1746, "Specimen botanicum, quo plantarum plurim.
Anglie indigenarum, loci naturales illustratum." 8vo. London,
BLACKSTONE, William, Sir, knight and L.L.D.,
a celebrated English lawyer, was born in London,
July 10th 1723, and received the first rudiments of
learning at the Charter-house, where he was admitted upon
the foundation in 1735, and whence he was removed, in 1738,
to Pembroke college, Oxford. At school and in the uni-
versity he was distinguished by his application and pro-
cerity; and the range of his studies, even at an early period, was
to extensive, that he is said to have composed a treatise on the
"Elements of Architecture," for his own use, at the age of
20. This treatise is was never published. As he made choice
of the profession of the law, he was entered of the Middle
Temple, and quitted Oxford in 1744 to pursue studies, very
different from those to which his taste inclined him at the uni-
versity. This change of his pursuits is feelingly commemo-
rated in the "Lawyer's Farewell to the Mufe," composed
about this time, and published in the fourth volume of
Dodley's Miscellanies. From this period he affidually
applied to his professional studies, residing occasionally in
chambers in the Temple, for the convenience of attending
the courts, and at other times in the university, to which he
was much attached. In 1742 he was elected a fellow of
All-Souls' college, and on the 24th of November 1746 he
was called to the bar, and commenced the practice of the
law. Delighted of a ready docility, and of other talents
required for a popular advocate, his progress was so
rapid; and he had leisure to discharge the duties of curate, or
reward, of All-Souls, which he did with such skill and diligence,
as to improve the revenues of the college, and to aid in
completing the magnificent structure of the Coderingtton
library. A treatise which he composed on this occasion is still
useful in conducting the peculiar concerns of this society. In
1749, he was appointed recorder of Walling-ford in Berks,
and instituted more constant residence at Oxford, he
took in the following year the degree of doctor of laws.
About this time he published an "Essay on collateral con-
finuity," particularly referring to the claim made by the
kindred of the founder of All-Souls to a preference in being
elected fellows of that society. It was written in defence
of the college, which had lately rejected some of these
claims; but the reasoning, though supported by great
learning and ingenuity, is deemed by some competent
judges inconclusive. In 1757, Mr. Blackstone, perceiving,
after a trial of seven years, that he had no prospect of suc-
cess in the courts at Westminster, determined to quit London,
and to retire to his fellowship at Oxford. This resolution
was eventually very favourable both to himself and the
public. As no public provision had been made either by
the founders of the English universities, or at any subsequent
period.
BLAckstone.

period, for teaching students the laws and constitution of their own country, Mr. Blackstone undertook to supply this defect, and opened a course of public lectures upon this interesting subject. With such reputation and success did he prosecute his plan, from Michaelmas term 1753, when his first course of lectures commenced, during a series of successive years, as probably to suggest the idea to Mr. Viner of founding by his will a very liberal establishment in the university of Oxford for the study of the common law. As soon as the plan of Mr. Viner's institution could be arranged, Mr. Blackstone was very properly elected, in October, 1758, the first Vinerian professor; and he introduced the duties of his new office by a well-written lecture, adapted both to the subject and the audience, which was soon afterwards published, and which has since prefixed to the first volume of his Commentaries.

With his engagements as a lecturer, Mr. Blackstone combined the occasional exercise of his profession as a provincial barrister; and, in 1754, he was employed as counsel in the great contested election for the county of Oxford. The fulness of his pleadings on this occasion was published in a pamphlet entitled "Considerations on Copyholders," with a view to the legislative decision of the point controverted at this election. The argument of this treatise is founded on feudal principles, and excludes copyholders from the right of voting; this right being, by his reasoning, restricted to those who have a freehold or permanent interest in land, which does not belong to copyholders, whom the feudal system considers as mere vassals, and dependent on the will of the lord. But it has been more liberally argued by others, that a series of legal decisions has given to this tenure the permanence of freehold property, and that as the reason of the distinction between the two species of tenure has ceased, the distinction itself ought no longer to exist. However, in the parliamentary discussion of this question, the technical arguments prevailed; and a declaratory act was soon afterwards passed, in conformity to the principles advanced by the professor's treatise, excluding copyholders from the right of suffrage. In 1759, Blackstone published, besides two tracts of a local and temporary nature, a new edition of the "Great Charter, and Charter of the Forest," introduced by an historical preface, which evinced a considerable knowledge of antiquities. In the same year, the reputation gained by his lectures encouraged him to return to the Temple, and to reform his attendance at Westminster; where he soon acquired professional eminence, and where he was employed for a considerable time in almost all cafes that required great learning and deep research. In 1761, he was elected member of parliament for Hinckon, and had a patent of precedence to rank as king's counsel, having before declined the office of chief justice of Ireland. In 1762, he collected and republished several of his pieces under the title of "Law Tracts," in 2 vols. 8vo. In 1763, he was appointed solicitor general to the queen, in the establishment of her majesty's household, and barrister of the Middle Temple. Having vacated his fellowship by his marriage, in 1761, he was immediately afterwards appointed principal of New Inn-hall, by lord Welfmoreland, then chancellor of the university. But in 1766, he resigned both this office and his Vinerian professorship.

The first volume of his lectures was published in 1765, under the title of "Commentaries on the Laws of England," a work which Sir William Jones has characterized as "the most correct and beautiful outline that was ever exhibited of any human science." In the execution of this undertaking, the author combines the humble duty of an expounder with the higher character of a philosophical writer on jurisprudence. Under the former character he is entitled to the highest praise. The style is correct, perspicacious, and elegant; and the author has admirably contrived to connect amicable with instruction, and to render the study of the law as agreeable as it is important and interesting. Notwithstanding the immense mass of materials of which this comprehensive work consists, few errors have been detected in it, and it has been cited as a book of authority.

It has been objected, however, that the Commentaries, excellent as they are in a variety of respects, that in those parts of them where the author examines the reasons and principles of law, he does not investigate them with a truly philosophical spirit, and that he does not rise above the ordinary level of those writers who, in every country and age, have extolled their own municipal institution as "the wisdom of ages," and "the perfection of reason." In discourse on the propriety of particular laws, it is said that "his ingenuity is always occupied by the forms of jurisprudence; and instead of referring to public convenience and general utility, the sole standard of all rational legislation, he perpetually appeals to those technical arguments which are dignified with the title of "legal reasons." He is, in all cases, the advocate and the apologists of existing institutions; and it is the constant tendency of his work to justify whatever has been established by antiquity, to defer the improvements of modern times, and to expose to contempt or indignation all proposals for further change. In his political principles he has been charged with being too much the advocate of prerogative; and his ecclesiastical opinions have been thought to incline towards intolerance. Notwithstanding the undue deference to authority, with which this writer has been charged, there are many passages in his admirable work, in which he expresses a marked disapprobation of standing armies and military barracks, and in which he eliminates the progress of the influence of the crown, and the probable effects of a further increase of the national debt. These passages, however, have been attributed, by some of those who have animadverted on his Commentaries, more to the spirit of the times, than to that of the writer. Several obnoxious passages in the ecclesiastical part of this work were pointed out by Dr. Pusey and Dr. Pusey; but though the author had not magnanimity enough explicitly to acknowledge his errors, these passages were retracted in subsequent editions. The political principles of the Commentaries were some years afterwards, viz. in 1770, more severely noticed in a treatise entitled "A Fragment on Government," by Jeremy Bentham, et seq. To the honour of Mr. Blackstone it should be mentioned, that notwithstanding the severity of this author's criticism, he afterwards became acquainted with him, and lived with him upon terms of regard and friendship.

Having given his opinion in parliament, on occasion of the debates about the Middlesex election, that an expelled member was not eligible to the same parliament, and this opinion appearing to contradict the language of his Commentaries, he was violently attacked for this inconsistency by the celebrated Junius and others; but, though he defended himself with ingenuity, he inferred the cale of expulsion in the next edition of his work, of which he had before taken no notice, as one of the disqualifications for a seat in parliament.

His distinguished talents and meritorious services entitled him, without doubt, to the notice and recompense of government. Accordingly, when he declined the offer of being solicitor-general, on the resignation of Mr. Dunning, in 1770, he was appointed immediately afterwards one of the justices of the common pleas, which office he held, except for a short interval, during which he accommodated Mr. Justice Yates by sitting as one of the justices of the king's
king's bench, till his death. Towards the end of the year 1779, a
diphthisial disease, occasioned chiefly by early application,
and by neglect of exercise, made rapid advances, and termi-
nated in his death, Feb. 14th, 1782, in his 56th year. In
private life, judge Blackstone was distinguished for mildness
and benevolence, and for every domestic and social virtue.
In studies and avocati ns that contributed to establish his own
reputation, and to benefit both his contemporaries and pos-
terity, he was eminently prolific; and the intervals of leis-
ure which he enjoyed in the later period of his life were
devoted to schemes of local improvement in the neighbour-
hood where he resided, or to great public undertakings.
The two volumes of Reports, which he left in MS. have
been published since his death, in 2 vols. folio, with a pre-
face containing Memoirs of his life; but their merit is laid
not to correspond with the fame of the author. He also
left in MS. several small poetical pieces; and his notes on
Shakespeare inserted in Mr. Malone's Supplement, shew
how well he understood, and how capable he was of appre-
ciating, the excellence of that author. Life prefixed to

BLACKSTONE, in Geography, a small river of America,
which has its source in Ramhorn pond, in Sutton, Massa-
chusetts; and, passing through Providence, discharges itself
into Narraganset bay, at Bristol, receiving in its course se-
veral tributary streams.

BLACKSTONIA, in Botany. See Chlor.

BLACKWALL, Anthony, in Biography, a native of
Derbyshire, was admitted a fellow of Emmanuel college, in
the university of Cambridge, in 1695. Having taken the degree
of M. A. in 1698, he became head-mastcr of the free-school
at Derby, and lecturer of the parish of All-hallows in that
town. In 1726, he excited notice by an edition of the
" Moral Sentences of Theogon," with a new Latin version,
together with notes and emendations. He also published, in
1718, "An Introduction to the Classics," 12mo., in which he
displays his excellence, gives directions for studying
them with advantage, and illustrates those rhetorical figures
by which language is cultivated and adorned. In 1722,
he was appointed head-master of the free-school at Market
Boicworth, in Leicestershire; and in this situation he pre-
pared for the press his principal work, entitled: "The Sacred
Classics defended and illustrated; an essay humbly offered
after proving the purity, propriety, and eloquence of the
writers of the N. T. in 2 parts 4to." This was pub-
lished in 1723; and a second edition in 8vo. appeared in
1727. After his death, a second volume was published under
the title of: "The Sacred Classics defended and illustrated,
the second and last volume, in 3 parts." 8vo. 1731. The
design of the author, in this elaborate and learned work, was
to vindicate the writers of the New Testament from the
charge of barbarism in their language, and to shew that the
words and phrases which they have used are to be found in
the most approved classical writers. Many of the obscurities
and seeming faults it attributes to transpositions and mis-
translations, and he urges the necessity of a new version.
See Bible. This book has been highly valued by biblical
scholars; and a Latin translation of it was published at
London, 1756, by Christopher Wulphus. Nevertheless it
has been thought by several very competent judges to be
written with more zeal than fidelity; and Dr. George
Campbell, in his Preliminary Dissertation to his Version of
the four Gospels, has attacked the fundamental principle
of the work, and made several particular criticisms upon it.
Mr. Blackwall was eminently distinguished as a schoolmaster,
and formed many good scholars, among whom was Richard
Dawes, author of the Miscellanea Critica. In his school he
used a Latin grammar composed by himself, and published
in 1728 without his name. Sir Henry Atkins, bart., who
had been one of his scholars, presented him, in 1726, with
the valuable rectory of Clapham, in Surrey; but he refused
it in 1726, and returned to Market Bicoworth, where he died
in 1730.

BLACKWATER, in Geography, the name of four
rivers in England and Scotland. That of England rises
near the middle of the county of Essex, and falls into
the mouth of the Thames, where it forms a spacious bay called
Blackwater bay. Thole of Scotland, 1in. in Berwickshire,
and 3d. in Berwickshire, and 3d. in Berwickshire.

BLACKWATER, the name of several rivers in Ireland, one
of which is very considerable. This river rises on the
mountains which separate the counties of Limonick and Kerry; and,
taking a southerly direction, divides the latter county from
the county of Cork for about 12 miles. After passing at
the foot of Slieve-logher mon tain, from which it receives
a large supply of water, it runs westerly across the northern
part of the county of Cork, which is about 45 English
miles. In this course it passes the flourishing towns of
Mallow and Fermoy, to the former of which it was naviga-
ble in lord Orrey's time, and receives the rivers Allo,
Aweeg, and Puncion, besides many smaller streams.
A few miles below Fermoy, it enters the county of Waterford,
and continues in the same direction for 12 miles, when, hav-
ing passed the ancient city of Lismore, it bends nearly at a
right angle to the south at Cappoquin. At this town it be-
comes navigable, and in its course receiving the river Bride,
and opening into two or three spacious loughs, it flows into
the sea a little below the town of Youghal, which is situated
on its western bank. This river passes for almost the whole
of its course, which, without making any allowance for its great
windings, is about 90 English miles, through a rich and
well-wooded country, "equally remarkable," says Mr.
Young, "for beauty of prospect and fertility of soil." The
banks are crowded with a number of fine estates, some of
which, as Dromana and Lismore castle, may vie with
those in any country, and have furnished artists with beau-
tiful landscapes. The cedar made in its neighbourhood is
held in great estimation, being preferred to the best im-
ported from England, and of course brings a very high price.
The Irish name of this river was Annulbiff, or Acoin-dub,
the black river, and also Acoin-more, the great river, to dif-
tinguish it from the Aroweg, or Acoin-beg, which runs into it.
The latter is the Mull of the immortal Spenfer, who
had an estate on its banks, where he resided for a long time.
In his marriage of the Thames, he has mentioned the
Blackwater and several of its tributary streams, though not
with geographical accuracy, as the Alto does not rise near
Slevogher, but has the Blackwater between it and that
mountain.

"Swift Aunilbiff, which of the Englishman
It is called Blackwater, and the Llalar deep,
Sad Traws that once his people overran,
Strong Alto tumbling from Slevogher steep.
And Mull of mine, who leaves Lambton taught to weep,"
—Spenfer. Tairy queen, b. v. e. 11.

—3. Another river, called Blackwater, rises in the county of
Tyrowe, and, for the greater part of its course, divi-
ses that county from those of Monaghan and Armagh.
The linen manufacture is extensively carried on in its neigh-
brbourhood, so that there are many bleach-works. The
flourishing little towns of Aughnesslo, Caledon, Blackwater
town, Moy, &e., are on its banks; and its navigation to
Longe Naugh, into the south-western angle of which it
pours its waters, has been improved at a considerable na-
tional expense, on account of the colliers at Dunglass,
in the county of Tyrone.—3. A river Blackwater rises in the
the county of Monaghan, and, having passed through Lough Ramor, unites its waters to those of the Boyne at Navan.

—There are also small rivers of this name, one in the county of Longford, which joins the Shannon near Lanesborough, and one in the county of Wexford, which flows into St. George's channel at the place where Bannow formerly stood. Smith's Cork. Beaumont's Map. Holmes's Tour in the South.

Blackwater Town, a small town in the county of Armagh, in Ireland, on the river Blackwater, which has a linen market. Distance from Dublin 66 miles.

Blackwell, Thomas, in Biography, was the son of one of the ministers at Aberdeen, and born in that city in the year 1701. He was educated at the grammar school and marischal college of his native place, of which, in 1723, he was appointed Greek professor, and in this office he contributed in no small degree to promote Greek literature, and the study of the classics in general. In 1735, his "Enquiry into the Life and Writings of Homer," 8vo, was published without his name; and by its popularity served to establish his reputation for learning and ingenuity. Of this work, discussing a variety of topics without any very obvious connection, Dr. Bentley is said to have remarked, "that when he had gone through half, he had forgotten the beginning; and that when he had finished the perusal of it, he had forgotten the whole." It is reckoned, however, the author's principal performance, and is both curious and entertaining. His "Letters concerning Mythology," 8vo, were published in 1743; and they were intended to establish a regular system of ancient fable, as an allegorical representation of the religion, laws, and philosophy of early times. The work is learned, fanciful, and delectable. In this year Dr. Blackwell was appointed principal of the Marischal college, and allowed his office of Greek professor. In 1751, he announced to the public his design of publishing a new edition of Plato's works; but this design was never executed. The first volume of "Memoirs of the Court of Augustus," 4to, was published in 1753; the second in 1755; and the third, after the author's death, in 1764. The object of this work is to exhibit, in an elegant and popular form, the principal facts of Roman history, at the commencement and during the period of the public life and reign of Augustus. It is written with vivacity, and was at first well received; but the affectation and familiarity of the style, united with a considerable degree of that pompous kind of pedantry, which displays not only erudition but a knowledge of the world, has contributed to lower its reputation. This work manifests also a republican spirit, not altogether free from party prejudice. The author's affected mode of writing increased as he advanced in years; and though it must be acknowledged, that he possesses genius and fancy, and had a relish for the beauties of ancient authors, he never acquired that simplicity of taste, which leads to the true and elegant manner of composition. This peculiar style and manner of composition have been attributed to an injudicious imitation of Lord Shaftesbury. Some years before his death Dr. Blackwell's health declined; and his disorder being of the consumptive kind, which he is thought to have increased by his sedentary mode of living, he was under a necessity of remitting his studies, and advised to travel: but with this view he could proceed no farther than Edin- burgh, where he died in 1767, the 56th year of his age. His temper was singularly mild and equable; and he retained his natural vivacity and cheerfulnes through the whole period of his illness, and till the hour of his death. In conversation he was inoffensive and entertaining; and he blended a considerable knowledge of the world and urbanity of manners with an extensive acquaintance with ancient and modern authors. But it was his foible, that he was apt to assume the appearance of universal knowledge; and this weakness betrayed him into conversations on philosophical and mathematical subjects, with which his acquaintance was very imperfect. Among his friends and correspondents were many persons of literary eminence; and it is said, that his patrons proped to introduce him into the professorship of modern history at Cambridge, if he had not died before a vacancy occurred. Biog. Britt.

Blackwell, Elizabeth, widow of Alexander Blackwell, M. D. author of "A New Method of improving cold, wet, and clayey ground," 1741, London, 8vo. Rejecting dung and other manures, he depended entirely on repeated ploughing and turning the ground. He died a miserable death in Sweden. His widow, being left in indigence, undertook, by the advice of her friends, to publish an account of 500 medicinal plants, to be drawn, engraved, and the greater part of them coloured by herself. The plants were furnished by Rant and Miller, from the botanical garden, belonging to the company of apothecaries, at Chelsea. They are, in general, Haley says, faithfully delineated. In some parts, however, she has failed. Not well instructed in the Linnean system, she has not delineated the fibres or filaments of the flowers with the accuracy now required. A short account is annexed of the medicinal virtues of each of the plants, some of which are extremely rare. The first volume of this work was first published in 1727, and the second in 1739, when the whole was published in 2 vols. fol. under the title of "A Curious Herbal, &c.;" and it is creditable to the author's to say, that this bulky and expensive work passed through several editions. The last, which came out in 1760, in 5 vols. folio, at Nuremberg, is furnished with a preface and considerable additions by James Trevor. After his death, in 1760, a supplemental volume, conducted by Ludwig, Bofc, and Boehmer, was printed in 1773. This work has been in a great measure superceded by Dr. Woodville's SS. Medical Botany, in 4 vols. 4to. Haller. Bib. Bot. Pulteney's Hist. and Biol. Sketches of the Progress of Botany in England, vol. ii. p. 254.

Blackwood, Adam, was born at Dumferline, in Scotland, in 1539, and educated at Paris under Turnebus and Dorat. He was particularly patronized by Mary queen of Scots; and when he had finished his law studies at Touloupe, he obtained the office of counsellor to the privy seal of Poitiers, which was Mary's dowry-town. In this place he settled and married; and, during the imprisonment of Mary, took several journeys to England with a view of serving her. He died in 1633. His religious and political sentiments may be deduced from the titles of his works, which were written both in verse and prose. Of these the principal were, "Caroli IX. pompa funebris veribus expressa," Paris, 1574; "De vinculo religionis et imperii, et de conjunctionum invidiae, religionis fuo adunbratis," 1573; "Adversus G. Buchananum dialogum de jure regni apud Scotas, &c.;" Poi- tiers, 1581; "Martyre de Marie Stuart, rene d'Ecoffe," &c. &c. His account of the execution of Mary Stuart is a virulent inveccive against queen Elizabeth, her parentage, her right to the crown, her government, &c. His works were collected and published in a 4to. volume by Gabriel Naudé, in 1644, with an eulogy of the author prefixed. Moret. Ger. Biol.

Bladder, in Anatomy, is a membranous bag, serving as a receptacle for some secreted fluid. That which is con- sidered as the chief receptacle of this kind, is the urinary bladder. As the anatomy of these parts, in general, will be described with that of the organ which prepares the fluid which they are intended to contain; therefore, for the sake of uniformity of method, the description of the urinary bladder
bladder is given with that of the kidneys and other urinary organs. See Kidney.

Bladder. Difficult of the, in Surgery. This wine being supplied with nerves, blood-vessels, eschariform, and mucous fibres, will be necessary lie to all the common disorders of flat parts; such as wounds, inflammation, ulceration, gangrene, palsy, coma, emaciation, rupture, &c. But, besides these affections, the bladder is subject to other morbid changes, which occur very rarely or not at all in most other parts of the body. It is sometimes included among the contents of a hernial sac. See Hernia. Partial bags, or fasciae, may likewise form in the coats of the bladder, so as to contain one or more eloxerous bodies generated in the urine. See Calculus, Cystotomy, Lithotomy, and Stone. Fungous, painful, and dangerous excrescences arise also on the inner surface of this organ, which are frequently denominaled cancers, and are perhaps equally fatal in their consequences. These disorders will, in general, produce either a retention or a preternatural evacuation of urine, and require a peculiar plan of treatment adapted to the diversity of symptoms. See Urine, Retention of, &c, &c.

Bladders, vesicles, in Botany, a kind of air bags found in some species of insects.

Vegetable bladders are found everywhere, in the structure of the bark, the fruit, pith, and parenchyma, or pulp; besides those morbid ones raised on the surface of leaves by the puncture of insects.

Bladder, swimming. See Air bladder.

Bladders, oil, in the Anatomy of Plants. See Oils.

Bladder, pelor, in Entomology. See Chermes.

Bladder-nut, in Botany. See Staphylaea.

Bladder-nut, African. See Rovenia.

Bladder nuts, laurel-leaved. See Holly.

Bladder fern. See Colutea.

Bladder shaped, inflates, denotes inflated or distended like a blown bladder; such are the cup of the bladder campion, and the blossoms of the fig-wort.

Bladder-scent. See Utricularia.

Bladder-wort, common. See Utricularia.

Blade, in Agriculture, a spike of grain, or green shoot of corn.

Blade, in Anatomy. See Shoulder-blade.

Blade of an Anchor, denotes that part of the arm on which the palm is shut.

Blades, in Commerce, a thin slender piece of metal, either forged by the hammer, or run and cast in moulds, to be afterwards sharpened to a point, edge, or the like. Sword-blades are made by the armourers, knife-blades by the cutlers, &c. The English and Dacianus blades are most esteemed. Among the French, those of Vienne and Dauphiny have the preference. The conditions of a good blade of a small sword are, that it be light and tough, apter to bend than break. When it will stand in the bend, it is called a pour mor ads blade.

Blade of a Chisel, is the iron or铁el part, as distinguished from the wooden handle.

Blade of Mace, or cinnamon, among apothecaries, are little slips or flakes of those barks.

Blade of an Oar, is that part which is plunged into the water in rowing. On the length of this do the force and effect of the car, so much the greater, measure, depend.

Blade of a Scythe, the thin part wherein the teeth are cut, which, to be good, must be thin, yet bend equally into a regular bow all the way, without yielding more in one place than another.

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divisions ovate, reflex. Stem. filaments four, setaceous, the length of the tube, inserted into the receptacle; anthers oblong, compressed, erect, obtuse, emarginate. Pet. germ. four-cornered, short; style setaceous, much longer than the corolla; stigma obtuse. Per. capsule oblong, quadrangular, four-celled, gaping at the angles. Seed, none roundish. Of these the anthers are emarginate, but not horned, as in cica, allied to this.


Species, 1. B. ericoideis, heath-leaved. B. "Anthers awnless, standing out; calyces four-leaved; bract the length of the calyx; leaves in foars, oblong-acerofo, hairy, imbricate." This has the figure of the common heath. Flowers terminating, white with a tinge of purple; corollas tubulous, erect; anthers two-parted, feaceous; style capillary, longer than the anthers. Introduced into Kew garden in 1774 by Mr. F. Maffon. 2. B. eiarain, eiliated B. "Flowers in a head, calyces ciliate." Refembling the preceding, and readily known by its white calyces, most difficultly eiliate. 3. B. articulata, joined-leaved B. Penna Sarcoila. Berg. cap. 25. "Stamens protruded, two-parted; corollas cylindric." A divided shrub, of the figure of common heath. Leaves in fours, pricked to the branches; heads of flowers terminating, with white-villoso calyces; corollas flesh-coloured; anthers very narrow, black; differing from the first in having equal filaments, and leaves more imbricated. 4. B. purpurea, purple-flowered B. "Stamens included; two-parted; corollas oblong, sliight; flowers terminating, aggregate; peduncles erect." Like the third; but the heads are nodding. 5. B. pufilla, dwarf B. "Flowers scattered; corollas funnel-form." This has the figure of small heath. Branches pubescent; leaves in fours, rugged, petiolated, scorced underneath with a line; flowers minute, scattered, shorter than the leaves. B. myosotis, moss-leaved B. Att. Hort. Kew. 1. 150. "Anthers awnless, almost standing out; calyces one-leaved, hairy; corollas bell-shaped, hairy in the upper part; flowers axillary; frigmas ciliate." Found at the Cape of Good Hops by Mr. F. Maffon, and introduced in 1774; flowering from June to August.

Propagation and Culture.—These are all shrubs, inhabitants of the Cape of Good Hops, require the same treatment and shelter with other Cape plants in the dry frame, and may be increased by cuttings, like the cicas, or heaths, which they much resemble. Martyn.

BLESLING, in Ornithology. One of the surnames of the greatest of English writers, and fascina alterima of Linnaeus. Vide Günther Neft. und. Eyer. The common eoot, fulica atra of Linneaus, is also named by this author kleiner blaugreif

BLEMMUS, in Medicine. See Stammering.

BLAGAITZKI, in Geography, a town of Croatia; 10 miles N.N.W. of Slun.

BLAGNAC, a town of France, in the department of the Upper Garonne, and chief place of a canton, in the district of Toulouse, on the Garonne; 3 miles N.W. of Toulouse.

BLAGOVETSCHENSKOY, a town of Russia, in the government of Archangel, near the south-east coast of the White sea; 70 miles S.W. of Archangel.

BLAGRAVE, John, in Biography, an English mathematician, was born of an ancient and honourable family at Bulmash court near Sunning in Berkshire, towards the middle or close of the 10th century, and educated, first at a school in Reading, and afterwards at St. John's college, Oxford. Before he took any degree he retired from the university to his patrimonial seat at South-cote lodge, near Reading, where he diligently pursued his studies, particularly mathematics. His works, of which we have any account, are, "A Mathematicai Jew," shewing the construction and use of an instrument fo called, and its application to astronomy, cosmography, geography, &c. Lond. 1585, 4to.; "The Contruction and Ufe of the Familar Staff, &c.," performing the geometrical mensuration of all altitudes, Lond. 1596, 4to.; "Altroalbium Uranicum generale," containing the use of an instrument, or altzlobe, Lond. 1596, 4to.; and "The Art of Dallin, in two parts," Lond. 1609, 4to. Mr. Blagreave was distinguished by his benevolence, both during his life, and at his death. Having never been married, he bequeathed 50l. to each of his children, or their posterity, payable at the age of 26; and his bequests in this way were so well administered, that near 80 of his nephews and their descendants were thus benefited out of his leafhold ciate. He also bequeathed lands for producing an annual donation of 10l. to a maid-servant in the town of Reading, according to the directions of his will. These directions required, that the churchwardens of each of the three parishes should on Good Friday fend one virtuous maid, who had lived five years with her master. The three maid's were to appear in the town-hall before the mayor and aldermen, and to eat dice. She, whose throw was the greatest, received the ten pounds. The three maid's who had lost were to appear the next year, together with a third added to them. Accordingly each maid was to have by his will the chance of three annual throws; but if any failed in three successive years, he orders new persons to be prelected. On the same Good Friday, money is distributed to 50 widows in pursuance of his will, who attend a sermon, for which the preacher is to receive ten shillings. Mr. Blagreave died Aug. 9th, 1611, and was buried in the church of St. Lawrence, Reading, where a funereal monument is erected to his memory. Biog. Brit.

BLAGRE, in Ornithology. Under this name Lervailant describears the African species of eagle called by Latham falco blagre, which fee.

BLAIN, a distemper incident to beasts, consisting in a bladder growing on the root of the tongue against the windpipe, which at length swelling stops the breath.

It comes by great chilling and heating of the stomach; whereby, as some judge, it still grows and increases by more heat.

It is perceived by the beast's gaping, holding out his tongue, and forming at the mount: to cure it, call the beast, take forth his tongue, and then flitting the bladder, wash it gently with vinegar and a little salt.

BLAIN, in Geography, a town of France, and principal place of a district in the Lower Loire. The population of the place consists of 1097 persons, and of the canton of 10,274; its territorial extent is 3424 Kilometres, and it includes 4 communes; 18 miles N.N.W. of Nantes, and 40 S. of Rennes.

BLAINVILLE, in Biography, a learned musician of Paris, who proposed, in 1751, a third mode or key, which he called a mixed mode, because it participates of the modulations of the two other, or rather from its being compounded of both, a mixture which the author does not regard as an inconvenience, but rather as an advantage and source of variety both in the melody and harmony. Rou- feau. Dit. de Musique, published 1768.

BLAINVILLE, a performer on the violoncello, and violinmaker at Paris, who had many symphonies and motets performed at the Concert Spirituell, in the middle of the last century,
century, without success; but abandoning the practice of harmony or composition, in order to try his force in the theory, in 1751, he produced "L'Harmoie theorico-pratico," in 1754, "L'Esprit de l'Art Musical;" in 1765, "L'Histoire générale, critique, et philologique de la Musique." These works are no better than his symphonies. They are compositions without taste, which teach nothing new to those who know anything about music already; and not enough to those who know nothing. In 1751, he had the courage to publish as a discovery a pretended new mode, a key different from the major and minor, which, he said, was neither major nor minor, but mixed of both. He composed a symphony in this new mode, and had it performed at the Concert Spirituel, which gave birth to many discussions and criticisms, &c. Laborde, Effai sur la Musique, tom. iii. p. 577.

"Who shall decide, when doctors disagree?"
The new mode, as it was called, was attacked by the ingenious and speculative writer on music, M. Serre, of Geneva, and defended by Rouffeau in his Dictionary. Thirty years after, it became the subject of a very long article in M. Laborde's Effai sur la Musique, merely to attack Rouffeau for having defended it. In this attack of the dead lion, the able Rouffeau wasattle-bulldo to his friend Laborde. All these gentlemen were utterly ignorant of the church music of the 15th and 16th century, built on the ancient ecclesiastical modes, in which nothing was more common in the masses of the old masters, than for a movement beginning in A minor to end on the Fifth of that key, with a sharp third, which would be called now a "soft cadence." The melody of the several parts is equally in the scale of C and A natural, which, without accidental flats or sharps, produces nothing but different species of octaves in the key of C natural. But calling E the key note instead of A, it has a peculiarity in the second, instead of being a tone major above the key note, is only a major semitone.

Now Dr. Pepusch, who rigidly adhered to the laws of the ecclesiastical modes in his "Treatise on Harmony," so late as 1731, in speaking of the key of E formed of one of the species of octave in the scale of C natural, has explained the properties of this key with only a major semitone for its second, much better than Bainville, or any of his defenders or opponents, and terminates his remarks on this key, by saying that "it differs from all others; for they are introduced by the semitone major below them, but this is by the semitone major above it; they by their seventh major, but this by its second, which happens to be minor; that is from F downwards to E. It is because of this difference and peculiarity in its modulation, which makes what is composed in it to be very solenm, that this key is as it were appropriated to church-music, and called by the Italians "tono di chiesa," p. 65.

But the doctor does not call it a new key, for it is as old as counterpart; and we should suppose that Bainville had either seen Dr. Pepusch's treatise, or found in some old mas a movement that ended on the Fifth, instead of the key note, and wished to pass for an inventor. But it is plain that all the French gentlemen, who took a part in this controversy, were disputing about the "det d'or," before they had ascertained its existence. In examining the masses of Jofquin, Palestrina, and the canticles of Tallis and Bird, we find movements of the description of Dr. Pepusch's "tono di chiesa." And in Padre Martinus's "Saggio di Contrepunto," tom. i. p. 42, he calls this mode il terzo tono autentico, the third authentic mode, which Bainville calls the new or mixed mode; and Padre Martinus even calls it terzo tono milo del quarto fluo plagale, p. 44. He gives the same natural scale for its intervals as Rouffeau and Bainville, EFGABCDE, p. 51. An example of this mixed mode is given from Palestrina, in which no accidental sharps are marked, though it modulates into G major, A minor, C, and G, a second time. A sharp only is given to G upon the close note, as sharp third to the final E.

In 1756, Bainville published what he called "A general, critical, and philological History of Music;" a work for which the author's materials seem to have been so scanty, that he was reduced to fill two-thirds of this quarto with an indigent treatise on composition. See Pepusch, p. 65, and examples 53 and 76.

Bainville, in Geography, a town of France, in the department of La Manche, or the Channel, and chief place of a canton, in the district of Coutances, five miles west of Coutances, and 13 north of Granville.

Bainville sur l'Eau, a town of France, in the department of the Marne, and chief place of a canton, in the district of Luneville, four miles S.W. of Luneville, and 12 S. E. of Nancy.

BLAIR, John, in Biography, a chronologer and geographer, was born in Scotland, and educated at Edinburgh. Upon his first arrival in England, he was usher at a private school, and first appeared with regular advantage before the public by publishing, in 1746, a work intituled "The Chronology and History of the World, from the Creation to the year of Christ 1753," illustrated in 56 tables, of which four are introductory, and contain the centuries prior to the first Olympiad; and each of the remaining 52 contains in one expanded view 50 years, or half a century; by the Rev. John Blair, L.L.D." This comprehensive work, on which the author must have bestowed a very great degree of attention and labour, was published by subscription, and dedicated to Lord Hardwicke; and the author acknowledges great obligations to the earl of Bath. Dr. Blair appears at this time to have taken orders in the English church; in 1756, he was elected fellow of the Royal Society, as he was of the Antiquarian Society, in 1761. In 1756, he published a second edition of his Tables, and in 1757, he was appointed chaplain to the princes-dowager of Wales, and mathematical tutor to the duke of York. In 1761, he obtained a prebendal stall at Weilmünster, and several church preferments in very quick succession. From the vicarage of Hinckley, in Leicestershire, which he held, by dispensation, with the rectory of Burton Coggles, in Lincolnshire, he was promoted first to the vicarage of St. Bride's, in London, in 1771, and in 1776, to the rectory of St. John the Evangelist in Weilmünster, with which he held that of Horton near Colebrooke, in Buckinghamshire. During the years 1762 and 1764, he accompanied the duke of York in his travels on the continent. In 1768, he published an improved edition of his "Chronological Tables," which he dedicated to the princes-dowager; and to this edition he annexed 13 maps of ancient and modern geography, and prefixed a dissertation on the rise and progress of this science, which was also printed separately in 12mo. His death, which happened June 24th 1782, was probably accelerated by the shock that attended the news of his brother, captain Blair's death in the memorable sea-fight of April 12, 1782; more especially as he then was severely afflicted with an epidemic influenza. After his death, in 1783, his "Lectures on the canon of the Scriptures, comprehending a dissertation on the Septuagint version," were published; and a new edition of his "Chronological Tables," extended to the year 1790, appeared in that year. Biog. Dict.

BLAIR, Patrick, practised physic and surgery at Dun- dee, in Scotland, where he was probably born. He first became known, in 1706, by his account of the anatomy of an elephant, which he had the opportunity of dissecting there. It was published in the Philosophical Transactions, Nos. 346 and 352.
and 327, in the year 1710. It contains an accurate description of the proboscis and its muscles, and confirms, Haller says, the opinion formerly given, that the elephant has no gall bladder. In a subsequent number of the Transactions, he gives a description of the officia auditus, accompanied with engravings. In the rebellion, in 1715, being suspected, on account of his religious principles, of hostility to government, he was for a small time confined. He came afterwards to London, where he re-published his "Anatomy of the Elephant," in 4to; and, in 1718, published a volume of "Miscellaneous Observations on the Practice of Physic, Anatomy, Surgery, and Botany," in 8vo. This was followed, in 1720, with "Botanical Essays," in two parts, also 8vo. with figures, in which he treats of the sexes of plants, confirming the arguments adduced in proof of them by found reasoning, and some new experiments of the manner of fecundation, of the circulation of the sap, &c. This work still retains its credit among botanists, although some of the author's opinions are abandoned. About the same time, he gave an account of the abeifus, found in the county of Angus, in Scotland, printed in the Phil. Trans. N° 333; and of the dissection of an emaciated child, in which he could find no velum of the omentum, Id. N° 353; and also of a boy, who lived a considerate time without food, Id. N° 524; and in the same number is also a dissection of the means of discovering the medicinal properties of plants from their external figure. He soon after settled at Bath, and published "Pharmacoe- botanical," or an alphabetical and classical dissection on all the British indigenous and garden plants of the London Dispensary, in seven decades, 4to. 1723 and 1728, introducing some plants which he had first discovered growing near Bath. The work only proceeded to the letter H. The time of his death is not known. Haller Bb. Anat. et Bot. Tunley's Sketches, vol. ii. p. 134. &c.  

BLAIR, Chairman, an episcopal divine, was born and educated in Scotland, where he was ordained and beneficed; but meeting with some discouragements in that country, he quitted his prebendaries, and removed to England, about the latter end of the reign of king Charles II. Being introduced to Dr. Compton, then bishop of London, he prevailed on him to go, about the year 1685, as a missionary to Virginia, where, by his conduct and ministerial labours he was eminentely serviceable in promoting the cause of religion. In 1689, he was appointed by the same prelate as his commissary for the province. Intent upon doing good in the office with which he was entrusted, he observed with concern, that the want of proper seminaries for religion and learning obstructed every attempt for propagating the gospel in this colony; and he therefore formed the benevolent design of erecting and endowing a college at Williamsburg, the capital of Virginia, for professors and students in academical learning. With this view he raised a considerable sum of money by voluntary subscription; and, in order the more effectually to accomplish his purpose, he came over into England in 1693, to solicit the concurrence of government. King William and queen Mary very much approved the design, and accordingly a patent was issued for erecting and endowing a college, which was to be denominated from its founders, "the college of William and Mary." Mr. Blair, who first projected the scheme, was appointed president of the college. (See Williamshurg.) He was also rector of Williamsburg and president of the council in that colony. Having faithfully and honourably discharged the duties of his office as president of the college for about 50 years, and that of his ministerial function for above 80 years, he finished his course of laborious and useful life in the year 1754. His works, comprising "Our Saviour's divine Sermon on the Mount explained, and the practice of it recommended, in divers fictions and discourses, with a recommendatory preface, by the Rev. Dr. Waterland," were published in 1720, 4 vols. 8vo. Waterland's Preface. Burnet's Hist. of his own Times, vol. iii. p. 165. 8vo.  

BLAIR, Hugh, a distinguished preacher and writer, the descendant of an ancient family of Anstford, in Scotland, and the son of a respectable merchant at Edinburgh, was born in that city, April 7th, 1718. As his views were at an early period directed towards the church, he entered the university of his native place in 1730, and spent eleven years in the studious prosecution of those literary and scientific studies which the church of Scotland prefers to such as proffers themselves candidates for the ministerial office. During this period his application and proficiency gained repeated testimonies of approbation from the professors under whom he studied. One of his performances at this time, indicating the bent of his genius towards polite literature, was an essay on the beauty, or "On the Beautiful," which afforded such satisfaction to professor Stevenson, that it was appointed to be publicly read at the conclusion of the session. This honour, without doubt, stimulated his emulation, and proved the earnest of his future fame. The method of study, which he commenced at college, and which he occasionally practised in his mature years, contributed in a considerable degree to the accuracy and extent of his knowledge. It consisted in making abstracts of the most important works which he read, and in digesting them according to the train of his own thoughts. This was the method in which he studied history in particular; and with this view, aided by some of his youthful associates, he constructed a comprehensive series of chronological tables, in which was inferred every important fact that occurred. In conformity to this plan, his learned friend, Dr. John Blair, formed his valuable work, already noticed under his article. In 1739, Mr. Blair took his degree of master of arts; and on this occasion he printed and defended, in elegant Latin, a thesis, "De Fundamentis et Obligatione Legis Naturae." Having completed his academic course, he passed through the coltumary trials before the prebendary of Edinburgh, and was licenced as a preacher, October 21st, 1741; and in the following year he was presented to the parish of Coileffe, in Fife, where he was ordained Sept. 23d, 1742. Such at this time was his established reputation as an eloquent preacher, that when a vacancy occurred in the Canongate church of Edinburgh, he was chosen at a contested election to supply it; and accordingly he returned to his native city in July 1743. In this situation he continued for eleven years, exhibiting specimens of those talents for pulpit compositions, which have since obtained distinguished testimonies of public approbation. In 1754, he was translated from the Canongate to lady Yelter's, one of the city churches; and in 1758, he was promoted to the High Church of Edinburgh, the most important ecclesiastical charge in North Britain. To this honourable rank he was advanced at the request of the lords of council and session, and of other distinguished persons holding public offices, who attend that church; and the wisdom of their choice was amply justified by the prudence, ability, and success, with which his ministerial labours were conducted for a period of more than 40 years. Previously to his advancement to this station of public service, Mr. Blair's attention seems to have been almost wholly devoted to the attainment of professional excellence, and to the regular discharge of his parochial duties. Of the productions of his pen, we have only two sermons, preached on particular occasions; some translations, in verse, of passages of Scripture for the
was preacher. His reward. She was...tion of rhetoric and belles letters in the university of Edinburgh, and to appoint Dr. Blair, in conlerration of his approved qualifications, regius pro-
ductor thereof, with a salary of 70l. The lectures which he delivered on this occasion, were published in 1783, under the title of "Lectures on Rhetoric and Belles Lettres," in two volumes. Also; and they have been frequently re-
published in 3 vols. 8vo. Of these lectures it will be sufficient to observe, that the general voice of the public not only in our own country, but in other nations on the continent into whose languages they have been translated, has pronounced them to be a most judicious, elegant, and comprehensive system of rules for forming the style, and cultivating the taste of youth. By a happy and singular union of taste and philosophy, the author has supplied a great defect in the science of criticism, and has made a valuable addition to the polite literature of the present age. In the course of this Dictionary we shall have frequent occasions for referring to this excellent work, and availing ourselves of its interesting and useful contents. In 1763, Dr. Blair published "A Critical Dissertation on the poems of Ossian," which, for beauty of language, delicacy of taste, and acuteness of critical investigation, has few parallels. As it was partly by his solicitation, that Mr. Macpherson was induced to publish his " Fragments of Ancient Poetry," it is no wonder, that, independently of the text of criticism, he should be a zealous advocate in favour of their authenticity and antiquity; but, notwithstanding his able defence, a degree of scepticism has prevailed on this subject.

Dr. Blair's reputation as a preacher, or rather as a compend of sermons, had been for a long time acknowledged by those who had the pleasure of attending on his ministry; but it was not till the year 1777, that he could be induced to favour the world with a volume of the discourses which had so long furnished instruction and delight to his own congregation. The MS. of this volume, it is said, was received by the bookseller with some hesitation; but it was sooner published, than he found it his interest to engage the author to furnish him with other volumes. Accordingly five volumes, in the whole, have been published at different intervals; and we may venture to affirm, that liberally as the author was remunerated, no collection of sermons has ever been more profitable to the bookseller, or more acceptable to the public, than Dr. Blair's. The circulation of them was rapid and extensive. They were translated into several foreign languages; and they received a still greater reward. A pension of 200l. a year, being out of the exchequer in Scotland, was conferred, in 1780, on the author, and it was continued without any alteration till his death. These fer-

mones, though they posses various degrees of comparative excellence, and some must be allowed to be much inferior to others, are upon the whole models in their kind; and they will long remain as monuments of the piety, the genius, and found judgment of the author. Occupying a middle place between the dry metaphysical discourses or controversial speculations of one class of preachers, and the loose incoherent declamations of another, they blend the light of argument with the warmth of exhortation, the elegance of composition with judicious observations on human life, and practical knowledge with important principles of religion and virtue. The last volume was prepared for the press by the author after he had completed his eighty-second year, and delivered to the publishers about six weeks before his death. Although he left many other discourses in manuscript, he explicitly enjoined that they should be destroyed, and thus wisely prevented that injury to his reputation which has sometimes been the result of posthumous publications. The author's fame, as a preacher, depended principally, if not wholly, on the intrinsic excellence of his discourses, with respect to matter and composition: for we are informed, that his delivery, though distinct, limpid, and impressive, was not remarkably distinguished by that magic charm of voice and action, which captivates the senses and imagination, and which, in the estimation of superficial hearers, constitutes the chief merit of a preacher. Dr. Blair, in the exercise of his professional duties, as far as they regarded the government of the church, was steadily attached to the cause of moderation. Difficult and unaccustomed to extemporary speaking, he declined interfering in ecclesiastical politics, and never would consent to become moderator of the general assembly of the church of Scotland; nevertheless, his opinion, which was always guided by sound judgment, uniformly commanded deference and respect. Whilst he was anxious to preserve the church from a servile corrupting dependence on the civil power, on the one hand; it was his wish, on the other, to prevent a greater invasion of democratic influence than he thought it compatible with good order, and the established constitution of the country. His reputation in public life was well sustained by the great respectability of his private character; and he was eminently distinguished throughout life by the prudence, purity, and dignified propriety of his conduct. With a mind free from envy, and yet not insensible to the estimation in which he himself was held; inflexibly upright, and yet condescending to his friends, and disposed to enjoy the pleasures of social intercourse; few men have passed through life more universally respected by those who knew him, more sincerely esteemed in the circle of his acquaintance, or more tenderly beloved by those who enjoyed the benefit of his private and domestic connection. His wife, to whom he was married in 1748, contributed for almost half a century to his felicity, and was taken from him a few years before his death; and his two children, a son and a daughter, died, the former in infancy, and the latter in her 21st year. His constitution was naturally delicate and feeble; but he enjoyed, upon the whole, a state of good health; and by habitual cheerfulness, temperance, and care, survived the usual term of human life. He retained his faculties to the last stage; and after a short illness of three days, expired on the 27th of December, 1800, with the composure and hope of a Christian pallor; and his funeral sermon was preached by Dr. Finlayson, who has annexed to the fifth volume of his Sermons a short ac-
count of the life and character of the author, from which the preceding article is chiefly compiled.

BLAIR, in Geography. See ATHOL.

BLAIREAU, in Zoology, the common French name of
of urusus melas, or badger. A variety of a white colour found in New York is also called in France Blancoue blanc.

BLAISEAU point du Cap de Bonne Esperance. Kolbe, and after him Abbé de la Caille, have described under this title a little quadruped found in the interior of Africa, which exhales a most insupportable odour. Whether it be of the badger kind in reality, or not, is uncertain. Somnini believes it to be of the civet kind, veverra Capensis; and on the contrary, Gmelin supposes it to be of the glutton kind, perhaps a variety of urusus gulo.

BLAIRIA in Botany. See VERBENA.

BLAISE, St., Order of, was founded in Armenia, about the commencement of the twelfth century. The habit of the knights of this order was a sky-blue; and on the breast thereof was embroidered their badge, being a cros of gold.

BLAISE. St. Blaize and the Virgin Mary was an order ecclesiastical and military. The particular time of its institution is not absolutely ascertained; but it is universally agreed that it took place soon after that of the Knights Templars. The badge of the order was a red cros, on the centre of which was a medallion with the image of St. Blaize enamelled thereon. When the knights assembled in chapter, or set out on any military expedition, they wore on their breast the same badge embroidered on a white habit.

BLAISE, in Geography, a town of France, in the department of the Upper Marne, and chief place of a canton, in the district of Chaumont, 12 miles N.N.W. of Chaumont.—Allo, a river of France, which runs into the Marine near Larzicourt, in the department of the Marine.

BLAISE, or BLAS, Sr., a cape on the coast of West Florida, in the gulf of Mexico. It is a promontory, which separates the bay of Apalache on the east from that of St. Joseph, forming a kind of hered's crook. N. lat. 29° 40'. W. long. 86'.

BLAISOS, a province of France before the revolution, bounded on the east by Orleanois, on the south by Berry, on the west by Bouraine, and on the north by Vendomois and Daunois. The capital was Blais, which fee.

BLAISON, a town of France, in the department of the Mayne et Loire, and chief place of a canton, in the district of Angers; 8 miles S.E. of Angers.

BLAKE, Robert, in Biography, a celebrated English admiral, was a descendant of an ancient family of the name in the parish of Saxton and county of Somerset, and born at Bridgewater, in August, 1589. Having received the rudiments of grammar learning at a free school in his native town, he became a member of St. Alban's hall, Oxford, in 1615, and translated himself thence to Wadham college, where, in 1617, he took the degree of bachelor of arts. In 1619, he left a fellowship of Merton college, for which he was a candidate, on account of his low fortune; for Henry Savile, the warden, paying particular respect to personal connexions. Soon after the year 1623, in which he wrote a copy of verses on the death of Mr. Camden, he left the university, where he had been noticed for his early rising and application to study, and lived privately at Bridgewater. Adapting himself at an early period republican principles, and prejudiced against the ecclesiastical establishment, by the severity with which Dr. Laud, then bishop of Bath and Wells, enforced uniformity in his diocese, he inclined also to those opinions that were deemed puritanical. Accordingly the puritan party prevailed in procuring his return as a member for his native town, to the parliament of 1624, but for the Long Parliament he lost his election. Upon the breaking out of the war between the king and parliament, he declared for the latter, and entering into military service, was soon appointed captain of dragoons. In this capacity he exhibited proofs of his talents by an obdurate defence of Britot against the attack of prince Rupert, which he was at length obliged to surrender. In 1644 he was appointed governor of Taunton, which he had surprised and taken possession of for the parliament, and which he defended with a small but well-disciplined garrison, during a vigorous siege by the king's forces, till he obtained relief. For this service the parliament voted Blake, who was then colonel, a present of 500 pounds. After the murder of the king, which he is said to have disapproved, he cordially joined the republican party, and was reckoned, next to Cromwell, the ablest and most successful officer in the service of the parliament. Without affecting the character of a politician, he thought it his duty to serve his country to the utmost of his power, and to execute any measures that were adopted by the party to which he was attached, and by the exiling government for this purpose. Early in the year 1649, he was appointed, in conjunction with Col. Deane and Col. Popham, to the command of the fleet; and his first naval expedition was directed, in 1649, against prince Rupert and prince Maurice, to the harbour of King'slease in Ireland; where he blocked them up for some time, and whence he purveyed them to Lilloon, whither they had fled for the protection of the king of Portugal. War being declared on this account against the Portuguese, Blake annexed their trade, and took several rich prizes; and he afterwards proceeded, first to Carthagena and then to Malaguia, in pursuit of prince Rupert. At the latter place he burned and destroyed his whole fleet, two ships excepted; and in the beginning of the year 1652, he returned with his squadron to Plymouth, where he received the thanks of the parliament, and was appointed warden of the cinque ports. In the following year he was constituted one of the admirals and generals of the fleet, and employed in reducing the islands of Scilly and the island of Guernsey. Having accomplished this service, he was elected one of the council of state; and in 1653, promoted to the rank of vice admiral for nine months, in the prospect of a Dutch war. The States, jealous of the naval power of England, determined to reduce it by a very vigorous effort. With this view they dispatched Van Tromp with 45 sail of men of war into the Downs, who was met by Blake with a much inferior force of 23 ships, and, after a very severe action, which took place May 19th 1652, obliged to retire. After several skirmishes with the Dutch ships, and the capture of many prizes, during the progress of the winter, Van Tromp appeared again in the Downs, towards the close of the year, with 80 ships, for the purpose of renewing his attack upon Blake. The English admiral, whose force was much inferior, and who had the disadvantage of an unfavourable wind, disdained however to retreat, and engaged the enemy on the 29th of November. Notwithstanding every possible exertion, he lost six ships, and was compelled to retreat into the Thames with his shattered fleet; and Van Tromp was left in triumphant possession of the channel. Blake lost no time in repairing and recapturing his fleet; and in February 1653, he fell into pursuit of his antagonist. On the 18th day of the month the English admiral, with 80 ships of war, came up off Portland with Van Tromp, who had 70, and a fleet of 300 merchant ships under his convoy. The engagement was such as seldom occurs in the history of naval combats; it lasted three days, and on both sides equal valour was displayed; at length, however, after a running fight up the channel, the Dutch anchored safely in the sands of Calais, having lost 11 men of war, 30 merchant-ships, and 1500 men who fell in the action, whilst the English lost only one ship, but as many lives as the enemy. In this action Blake was wounded in the thigh.
At this time Cromwell disunited the parliament, and assumed the supreme power; nevertheless, Blake and his colleagues declared their fixed purpose to serve their country faithfully, and to guard it, by every effort in their power, against foreign injury and infult. "It is not for us," said Blake, "to mind flare affairs, but to keep foreigners from fooling us." Accordingly, when generals Monk and Deane, on the 23d day of June, had engaged Van Tromp with a fleet of 150 men of war, with dubious success, and with the loss of several men, among whom was Deane, Blake on the next day came up to their assistance with 18 fresh ships, and gained a victory so complete, that if the Dutch had not again faved themselves on the sands of Calais, their whole fleet must have been funk or taken. After this engagement, his health being much impaired, he took his seat in the new parliament, summoned by the protector Oliver, as a representative of his native town, and he was constituted one of the commissioners of the admiralty. Cromwell indeed treated him with great respect; but he was not unapprized of the admiral's strong inclination to a commonwealth; and he was therefore the more difpofed to send him, in November 1654, with a strong fleet into the Mediterranean, for the purpose of supporting the honours of the English flag, and procuring satisfaction for any injury which the British merchants had suffered. Whilst he lay in the road of Cadiz, he was treated with great respect by the Dutch and French; and even by the Algerines. However on the 10th of March in the following year he appeared before Algiers, and demanded satisfaction for the pirates committed on the English, and a release of all English captives. He then failed to Tunis on the same errand; but the day, confiding in the strength of the place, treated Blake's message with contempt; "Here," said he, "are our caftles of Goleta and Porto Ferino, do your word; do you think we fear your fleet?" Blake curing his whims, as he was accustomed to do when in a passion, consulted his offcers, and then bore into the bay with his heavy ships; demolished the caftles, burnt all the shipping in the haven of Tunis, and forced the haughty and obdurate day to an humble submission, and an advantageous peace. This daring action spread the same terror of his name through Africa and Asia, which had for a long time prevailed in Europe. He also saved the pratical flates of Tripoli into a peace with England, and the knights of Malta into a composition for the injuries which they had committed. Such was the effect of their exploits on the princes and flates of Italy, that most of them thought fit to pay their compliments to the protector; and the grand duke of Tuscany, and the free flate of Venice, in particular, sent magnificent embaffies for that purpofe. During the war with Spain, which was carried on with great spirit at this time, Blake, in pursuance of the protector's order, exerted himself in riving their maritime force in Europe, and Montague being joined with him, on account of his declining health, bloclked up for several months a Spanish squadron in the bay of Cadiz, and detached a part of their fleet to capture the Spanish plate fleet. Montague returned to England with the prizes; but Blake, whose constitution was broken by the droufy and fever, laid behind; and in April 1657 failed with 25 men of war in pursuit of another plate fleet which had put into Santa Cruz in the island of Teneriffe. Upon his arrival, he found that the governor had used every poifible precaution for the defence of the harbour; 15 Spanish ships were di- poled in a circular form within the bay, and strongly bar- ricated; and the entrance was guarded by a caftle and 7 forts, connected with one another, and furnished with large cannon. Blake pierced boldly into the bay, leaving some of his ships to fervice the batteries, while with the reft he at-
"The same kind of whole, through the divided leaves
That are innumerable upon the shrub'sSterile branches, inhabited the small source.

Boys of Blakeney, nor the pinker; And the
"Beat the>Last of the
When the

Thou wert expected to be the..."
monies of France from the establishment of the monarchy. Accordingly he published "A Treatise on the Monies of France," Paris, 1658, 4to, with figures; reprinted at Amsterdam, 1692. To this is usually annexed his dissertation, published the preceding year, "On the coins of Charlemagne and his successors struck at Rome." He was chosen historical tutor to the royal children; but died before he entered on his office, at Versailles in 1698. Nouv. Dict. Hist.

BLANC, John Bernard Le, Abbe, historiographer of the public buildings, and member of the academies of La Crouze, and of the Arcadi at Rome, was born at Dijon in 1707, and engaging in the literary career, wrote a tragedy entitled "Abrégé," which, notwithstanding the harshness of its execution, was at first well received. At Paris, where he settled, he obtained friends and patrons; and in 1746 Maspertius was empowered by the king of Prussia to offer him a residence, as a man of letters, at his court, which he declined accepting. His "Letters on the English nation," in 3 vols, 12mo, 1758, are the most known of his works, and were occasioned by his visit to England. The style is heavy, and the thoughts trite and vulgar, to that they are now little read. He died in 1781. Nouv. Dict. Hist.

BLANC, Lewis Le, Sieur de Berthieu, a professor of divinity at Sedan in the 17th century. was born at Phebus-Mari, where his father was minister, and in the progress of his life, of which few particulars are record'd, was distinguished by his learning and virtue. He died in 1675, at the age of 60 years and 6 months. His "Théfé Théologique" were collected into one volume after his death, passed through several editions, and are highly worthy of an attentive perusal. The first edition was printed at Sedan in 1710, and two other editions were printed in England; the third in 1693. He was eminent for the persuasive power of his eloquence, and discovered an uncommon degree of penetration and legancy in his writings and negotiations. Anxious for a reconciliation and union between the Reformed and Romish churches, he passed in review many of the controversies that divided them, and seemed to prove, with the utmost perspicuity, that some of them were merely disputes about words, and that the other were of much less consequence than was generally imagined. This manner of stating the differences between the two churches drew upon him the indignation of those who regarded all attempts to soften and modify controverted doctrines as dangerous and detrimental to the cause of truth. Among these we may reckon Arnaud, Saurin, and Jureau. On the other hand, the acuteness and ductility with which he treated this delicate subject, made a considerable impression upon several persons, and procured him disciples who entertained his reconciling sentiments, but either entirely concealed them, or discovered them with caution, as they were known to be disproportionate to the greatest part of the members of both communions. Some of Le Blanc's sermons were printed at Sedan in 1675. Gen. Dict. Art. Berthieu. Mohr. Encycl. Hist. vol. v. p. 379.

BLANC, Lewis Le, a faithful surgeon and histomorph of Orleans, published in 1764, "A Dictionaire on the utility of Anatomy," and in 1756, "Nouvelle Methode d'opérer des Hémorragies," 8vo. Recommended dilating the ring with the finger, if practicable, which it usually is, he says, in recent cases; in those of long standing, with a pair of forceps invented for the purpose, instead of using the knife. This doctrine having been opposed by Ant. Louis, he was answered by Le Blanc in a dissertation on the subject, published in the fourth volume of the Memoirs of the Academy of Surgery. After reducing the intellese, by his method, no truth is wanted, as it invariably the case when the ring is opened by incision. The forceps are introduced into the ring, closed, and open themselves by the force of an elastic spring. He also wrote on the operation for the stone, on the method of extracting small portions of the plaques left in the uterus, and further observations on the cure of hernia. These papers were published in the 50th, 51st, and 52nd volumes of the Journal de Medicine. In 1753 he published "Precis d'operations de Chirurgie," 2 vols. Supposing the fulness of the above, with some additional observations. Haller. Bib. Anat. de Chirurn.

BLANC, mungn. Fr. q. d. good food, in Domest. Economy, is a preparation of diffolved ingalls, milk, fish, cucum on. &c., boiled into a thick confection, and furnished for the table with blanched almonds. It is cooling and strengthening.

BLANC, montca, in Ecclesiastical History, a name originally given to the Services, or servants of the Blessed Virgin, on account of their white cloaks; but since applied to divers sorts of religious, who have successively inhabited the house of the Services, and now to the Benedictresses at Paris, though inhabited in black.

BLANC, Mont. in Geography, a lofty mountain of Savoy, in the county of Tuscany, being part of the ancient "A pros Pennine." See Alps. This is reckoned the most elevated mountain of the ancient continent, its height above the level of the sea being, according to the calculation of M. de Luc, 1,724, English feet; or, according to the measurement of Mr George Shackburgh, 1,672 feet. This accurate observer informs us (Phil. Trans. vol. clxviii. p. 95), that the height of Velving, estimated by Soulure at 3100 feet, placed upon mount Atna, elevated, according to sir George, 1054 feet, would not be equal to the height of Mont Blanc, which he supposes to be the most elevated point of Europe, Asia, and Africa. This mountain, observed from the "Cul de Béne," and the vale of "Chamouny," is particularly distinguished from other mountains by a mantle of snow, which clothes its summit and sides, almost without the intervention of the lead rock, to break the glare of the "white" appearance, from which its name is derived. Those who have seen it from the valley of Aost observe, that on that side it does not appear to be covered with a mantle of snow, and that it exceeds the Schreckhorn in ruggedness and beauty. See Schreckhorn. "Those who are totally unacquainted with Alpine scenes," says Mr. Coxe, (Swift, vol. ii. p. 53) "may, perhaps, conceive a faint idea of this gigantic mountain, on being informed, that the mantle of snow, which appears to cover its top and sides, exceeds an altitude of 4000 feet perpendicular, and 9000 feet in an horizontal distance from the dome of Gout, to the summit; and that the height of the snow and ice, estimated from the source of the Avernon, at the bottom of the glacier of Montanver, to the summit of Mont Blanc, cannot be less than 12,000 perpendicular feet, or near three times as high as Snowdon in North Wales. The highest point of this mountain appears like a compressed hemisphere, and is called from its form "La Boffe du Drome," from that point it gradually sinks, presenting a kind of cone. The surface of the snow, in the midst of which is a small pyramid of ice; it then rises into a second hemisphere, called by some "Little Mont Blanc," but more properly, by others "Le Dôme du Milieu," or the "Middle Dôme;" thence it descends into another concave surface terminating in a point, indifferently styled by the natives "Aiguille de Gout," "Point de Gout," and "Dôme de Gout;" from this dome it ends abruptly, and leaves itself amid the mountains that bound the vale of Chamouny. Five glaciers extend into this vale, and are separated from one another by forests, corn-fields, and meadows; so that large tracts of ice are blended with cultivation, and perpetually succed each
of the most singular and striking vicissitude. These glaciers, which lie chiefly in the hollows of the mountains, and are some leagues in length, unite at the foot of Mont Blanc.

Of the various attempts that have been made to reach the summit of Mont Blanc, the first was that of M. Cauteret, and three guides of Chamoun, Michael Paccard, Victor Taffy, and Maria Coutet. On the 13th of July, 1776, they set off from the priory, about 11 in the evening; piled between the glaciers of Boifon and Taconn; and after spending above 14 hours in mounting rugged and dangerous scenes, and in crossing various valleys of ice, and large plains of snow, found themselves on the top next to Mont Blanc. But though at first sight it appeared to be scarcely a league distant, they soon perceived that it seemed, on account of the clearness of the air, the whiteness of the snow, and its great height, to be much nearer than it really was, and that it would require at least four hours more to reach the summit, even if it were practicable. As the day was far advanced, and the vapore near the summit of the mountain began to gather into clouds, they relinquished their enterprise; and returned to Chamoun, not without perilous danger in leaping over chasms of ice, after a journey of 22 hours, with such insurmountable obstacles, that they had approached nearer to Mont Blanc than any former adventurers. The summit which they had attained is, according to Sir George Shackburgh, more than 13,000 feet above the Mediterranean. After some subsequent but unsuccessful attempts, M. Bourrit, accompanied by four guides, departed from Bionairy, and began to a scale (as he terms it) the rampart of Mont Blanc, when he suddenly found himself exceedingly affected by the intense cold that he was unable to proceed. Maria Coutet, and Francis Gudet, two of his guides, proceeded to the dome of Gouté, which is about 34,200 feet in an horizontal direction from the summit; but the approach of night obliged them to return. On the 4th of September 1785, Maria Coutet and James Balmat advanced beyond the dome of Gouté, towards the summit, but a violent storm of hail and wind compelled them to abandon the enterprise. On the 13th of this month M. Sauriire and Bourrit, attended by twelve guides, well provided with barometers, thermometers, and other necessary instruments, left Bionairy, and arrived at a hut, which was constructed by their orders, at ’Pierre Rondey,’ 3,258 feet above the level of the sea; and on the next morning they pursued their journey to the dome of Gouté; but a heavy fall of snow prevented their progress. Sauriire says, that the mercury in the barometer sunk 18 inches, and that he reached an elevation of 3,256 English feet. In July 1786, James Balmat, one of his guides of Chamouny, being separated from his companions, who failed in another attempt, passed the night on a spot above the ‘Dome of Gouté,’ elevated more than 13,000 feet above the level of the sea. On his return, however, to Chamouny, he was affected with a very severe indisposition, the effect of extreme fatigue, and of the intense cold; but being attended by Dr. Paccard, a physician of the place, he recovered, as an expression of gratitude for his attendance, to conduct him to the summit of Mont Blanc. Accordingly, on the 7th of August, these two daring adventurers fell forth from Chamouny, and reached the mountain of ‘La Côte,’ which overhangs the upper part of the glacier of Bollon. Here they passed the night, and at three on the next morning they pursued their route over the ice, ascended the ‘Dôme de Gouté,’ passed under the ‘Middle Dôme,’ and turning to the east, at the left pyramid of rock, continued along the ridge which is seen from Geneva, and which lies on the left of the summit. Here cold and fatigue discouraged Dr. Paccard; but being animated by his companion, he determined to advance, struggling with a very violent and piercing wind, till at length they attained the summit which no one had visited before. Here they remained about half an hour, when they found the cold so intense, that their provisions were frozen in their pockets, the neck congealed in their inmost, and the mercury in Fahrenheit’s thermometers sunk to 109°. They spent 15 hours in ascendant, and found great difficulty in their descent, their flight being much dirbulated by the reflection of the snow. On their return to Chamouny at night in the morning, their faces were excrated, their lips much divided, and Dr. Paccard was almost blind. These adventurers prepared the way for the observations and discoveries of future naturalists, and particularly of Sauriire, whose indefatigable zeal would not allow him to rest, till he had reached the top of Mont Blanc, and made those experiments, which have served in a very considerable degree to elucidate the theory of the atmosphere.

Having arrived at Chamouny, a village at the base of the mountain, M. de Sauriire was detained by continual rains for four weeks; after which, he set out on the 18th of August, 1787, accompanied by a servant and 18 guides, who carried the philosophical instruments and the tents, and other apparatus necessary for the intended experiments. Although the distance from the priory of Chamouny to the summit of the mountain is little more than two leagues, or about 64 miles, in a straight line, it requires nearly 18 hours to gain the summit, on account of the difficulties of the road, as well as the necessary circuits. In the evening, they arrived at a hut constructed for them on the top of the mountain of ‘La Côte,’ about a mile perpendicularly above the village. Their second day’s journey was attended with many difficulties, owing to the wide, deep, and irregular chasms intersecting the inner-valley on the side of the hill, which can only be crossed by means of bridges naturally formed of snow, and often very slender; extended, as it were, over an abyss. In this perilous valley, they were obliged to pursue a winding road, so that they were three hours in crossing it, though in a straight line its breadth is not above three-quarters of a mile. At length, however, they reached the chain of rocks that border on the perpetual snows which cover Mont Blanc, and then mounted, in a perpendicular direction, to a valley filled with snow, and running from north to south, to the foot of the highest pinnacle. The surface of the snow in this valley has numerous fissures; penetrating to a great depth, and considerably broad; presenting to view, by their broken sides, the successive horizontal layers of snow, which are annually formed. In this situation the guides wished to pass the night; but Sauriire, observing that the loftiest of these rocks is at least 1,400 yards perpendicularly lower than the summit of the mountain, wished to proceed, and at length prevailed with the guides to accompany him. At four in the afternoon, they arrived at the second of the three plains of snow, which they had to pass; but as the day was far advanced, and they were apprehensive of exposing themselves to the ‘Avalanches,’ which are frequently tumbling from the summit of the mountain, they determined to proceed no farther. Here they encamped at the height of 3,912 feet above the priory of Chamouny, or 13,562 feet above the level of the sea. For this purpose, they dug a deep hole in the snow, of sufficient width to contain the whole company, and covered its top with the tent-cloth. In this situation the barometer had fallen to 17 inches, 10 lines, and they all felt the effects of the rarefied air. Seven or eight hours’ walk, which they had just performed, had not in the least affected these robust and hardy men; but they had scarcely raised five or six shovels of snow, in forming their intended habitation, before they were under a necessity of
of distilling from his lungs, and of taking breath at very short
intervals. M. de Saussure himself, though accustomed to
the atmosphere of mountains, and finding himself, as he says,
much better in it than in the air of plains, now felt exhausted
with fatigue, only by observing his meteorological instru-
ments. This uncomfortable sensation was heightened by an
acute thirst, and water could not be procured, except by
melting snow; for the water which they had seen during
their ascent would by this time be congealed; and the
small flint-dish which they had taken with them, was
slowly supplied 20 people languishing with thirst. From
the middle of this snowy plain, not far below the top of Mont
Blanc, the snow exhibited the most dazzling brightness, and
formed a singular contrast with the sky, which, in these ele-
vated regions, appears almost black. No living creature
was seen here, nor the least trace of vegetation. The moon
shone with the brightest splendour in the middle of a sky as
black as ebony. Jupiter, rays like the sun, arose from behind
the mountain in the east; and the light of these luminaries
was reflected from the white plain, or rather basin, in which
they were situated and by their dazzling light, eclipsed
every star, except those of the first and second magnitude.
While they were composing themselves to sleep within their
tent, incommoded by heat and humid air, they were soon
alarmed by the noise of an immense mass of snow, or "Ava-
lanche," which fell from the top of the mountain, and
covered part of the flaps over which they were to climb the
next day. The next morning they departed at seven for the
third and left plain; turning to the left in their way to the
highest rock, which is on the east side of the summit; they
found the ascent in some places so steep, that the guides
were obliged to hew out their footpaths with hatchets.
Their progress was slow, and it took them two hours to
climb a hill about 1,700 feet high. Having arrived at this
rock they turned to the west, and climbed the left ascent,
about 600 feet high, inclining about 25 or 30 degrees.
Here the air was so rarefied, that Saussure could not take
15 or 16 steps without stopping for breath; and at in-
tervals he found himself faint, so that he was under the necessity
of sitting down, until, with the return of respiration, his
strength was revived. On his arrival to the summit, at
11 o'clock, a slight vapour, suspended in the inferior regions
of the air, prevented him from beholding the lower and
more distant objects; such as the plains of France and Lomb-
ardy; but he had the less reason for regretting this loss,
as he was agreeably surprized by a most distinct and compre-
ssive view of all those elevated summits, with the organi-
zation of which he had so long desired to be acquainted.
He thought himself dreaming, when he saw beneath his feet
many majestic peaks, especially "Aiguillette," "Le Midi," "l'Argenterie,"
and "Le Géant," the lakes of which he had found so difficult to ascend.
He feized in his mind their mutual proportion and connection, their form and
structure; and a single glance removed doubts, and afforded
information much more satisfactorily, than whole years of
previous study. During this time, his guides pitched his
tent, and made preparations for his experiment; but in
attempts to dispose his instruments for this purpose, he
was obliged, almost at every interval, to desist, and wholly to
occupy himself about the means of respiration. Considering
that the barometer stood at only 97.5 inches, 1 line, or 13.145
inches English, and that the air, consequently, possessed
little more than half the density of that on the plains, it is
manifest that the deficiency was to be supplied by more fre-
cquent inspirations. This frequency, of course, accelerated
the circulation of the blood, more especially as the arteries,
on the surface of the body, were no longer actuated from
without by the pressure which they usually experience.

When M. de Saussure remained perfectly quiet, he only felt
rather uncomfortable, with a slight disposition to lie sick;
but in any exertion, or when he fixed his attention for a few
successive moments, and particularly when, by looking, he
comprehended his chief, the deficiency occurred of resuming
himself, and resuming for two or three minutes. His guides also
experienced similar sensations. They felt no appetite, and had
no inclination to take wine or brandy, having found that
strong liquors increased the above indispositions; without
doubt, by quickening the circulation of the blood. Nothing
but fresh water was consumed and relished, and yet both time
and exertion were required to light the fire, without which it
was impossible to obtain any. In this situation Saussure and
his companions continued 48 hours, and in their defect
they found fewer difficulties than they expected. They ar-
erived the next morning at the valley of Chamouny, without
the least accident; and as they had taken the precaution to
wear veils of cape, their faces were not excoriated, nor their
fright debilitated.

M. de Saussure has given an ample detail of his observa-
tions on the summit of Mont Blanc, in the 4th volume of his
"Voyages dans les Alpes," and a translation of this account
by professor Martyn, of Cambridge, forms an appendix to his
sketch of a tour through Switzerland. We shall here select
a few particulars. We learn from this narrative, that the sum-
mit of the mountain is a ridge, nearly horizontal, lying east
and west; the ridge at each extremity extending from 20 to
30 degrees, the height being between 15 and 20, and the north about
43 or 52. This ridge is so narrow as scarcely to allow two
people to walk abreast, especially at the west end, where it
resembles the roof of a house; it is wholly covered with snow;
but there is any bare rock to be seen within 150 yards of the top.
The surface of the tuor is rocky, and in some places covered
with an icy crust, and when the snow is deep, and without
colour. The highest rocks are all granite; those on the east
side are mixed with flint, those on the south and west contain
a large quantity of schist, and a little limestone. Some of them, especially those on the east, which
are about 150 yards below the summit, form to have been
lately shivered with lightning. M. de Saussure saw no animal
on the mountain, except two flowers, a grey phanaema.
and a "Myrtillus," which he supposes must have been driven there by the wind. At the elevation of 11,122 feet above
the sea, he observed the "Silene Acaulis," or moss campion,
in flower; and still higher, on the most elevated rocks, the
"Lichen Sulphureus," and "Lichen Rupicola" of Hoff-
man. He has given us the height of the barometer on the
summit of the mountain, viz. Aug. 3, at noon, 16 inches o line,
and 144 of a line, French measure, i. e. 16.181 English; and
Reaumur's thermometer was 2.5 below the freezing point,
or 27 of Fahrenheit. M. Sennacher, at the same time,
observed, at Geneva, the barometer 27 inches 2 193 lines, or
29.050 English inches, and the thermometer 32.6 above freezing,
or 82 of Fahrenheit. From these data he makes the
height of Mont Blanc 2218 toises, or 14,188 English
feet, according to M. de Luc's rule, and 2273 toises, or
13,553 English feet, according to M. Trembley. To
these heights, 15 toises, or 83 feet, the height of M. Sennac-
her's room above the lake of Geneva, must be added, to
give the height of the mountain above the level of the lake
14,253 feet, according to M. de Luc, and 14,063 feet,
according to M. Trembley. Sir George Shannon made the
height of Mont Blanc, by trigonometrical measure-
ment, 13,129 feet above the lake, which is almost the mean
between the other two. The result of the observations
made at Chamouny, contemporaneous with those on
Mont Blanc, agrees still more nearly with sir George's measur-
ment. The general mean result makes the summit of Mont
Blanc 327
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Blanc 2450 toises, or 15,673 English feet, or nearly three English miles above the level of the sea. By M. de Saussure's experiments with the hygrometer, the air on the top of Mont Blanc contained six times less humidity than that of Geneva, and to the extreme dryness of it he attributes the burning wrath which he and his companions experienced. But the result of his experiments seems very different from the system of meteorology published by M. de Luz. See Hygrometer. It requires half an hour to boil water on the top of this mountain; whereas 15 or 16 minutes are sufficient at Geneva, and 14 or 15 by the sea-side. Water boiled at 68.503 degrees of a thermometer, which refers to 80 with the barometer 27 French inches high. By experiments with the electrometer, M. de Saussure found, that the electricity of the air on the summit of the mountain was positive. The wind on the summit was north, and very piercing; but southward of the ridge the temperature of the air was agreeable. The experiments with lime-water, and with the caustic alkali, showed that the air was mixed with atmospheric acid, or fixed air.

The difficulty of respiration experienced by M. de Saussure and his companions, has been ascribed by some to fatigue, and to the rarefaction of the air; but his observations prove, that the latter was the cause both of the difficulty of breathing and the quickness of the pulse. This, indeed, was so considerable, that the pulse of one of the guides, after continuing four hours on the summit, was 98, of the servant 112, and of M. de Saussure himself 160 in a minute; whereas at Chamonix they were 49, 60, and 72 respectively. M. de Saussure's observations confute an opinion, which is very common, with respect to the change of the shades of smell and taste supposed to take place on high mountains. He tried the experiment on different mountains, and both the taste and smell of bread, wine, meat, and fruit, appeared to him, and to his attendants not at all different. As to sounds becoming weaker, this circumstance is not to be attributed to any impaired state of the organ of hearing, but to the rarefied air, which both retards and vibrates less. Defides, in an insalubrious summit there are no echoes or solid objects to repel the sound. These concurring causes rendered the sounds on the top of Mont Blanc remarkably feeble; the report of a discharged pistol being equal in strength only to that of a small Chinefe cracker let off in a room.

Soon after M. de Saussure's expedition, Mr. Beaufoy, an English gentleman, succeeded in an attempt to ascend Mont Blanc; but it was attended with peculiar difficulty, arising from the enlargement of the chasms in the ice. An account of this enterprise was communicated to the Royal Society in 1787.

BLANC, Mont, given denomination to a department formed of Savoy. It is bounded on the north by the departments of Leman and of Aix; on the south by Piedmont; on the east by the departments of Upper Alps and of Iere; and on the west by those of Iere and of Aix. Its superficial is about 1,753,760 square acres, or 430,472 hectares; and its population about 283,106 individuals. It is divided into four communal districts; viz. Chambery, its capital, Annecy, Moutiers, and St. Jean de Maurienne.

BLANC-en-Berry, Le, a town of France, and principal place of a district, in the department of the Indre, containing 3570 inhabitants. The population of the canton amounts to 10,622; and its territory comprehends 3874 kilometres and 10 communes; its leagues W. of Argenton.

BLANC-Comfor Herald, created by patent on the revival of the most honourable military order of the Bath, 1715, "to attend the full and principal companion of the order for the time being." He enjoys all rights, privileges, and immunities as any other herald; and his office is annexed, united, and perpetually consolidated with the office of genealogist of the said order. See Genealogist of the Bath.

BLANCA, in Geography, a small island in the West Indies, north of Margarita, in the province of Anduasia, low and uninhabited; having labyrinths of long grass, plenty of guanas, and some trees of lignum vitae; but chiefly remarkable for its turtle fishery. N. lat. 17° 21' W. long. 64° 10'.

BLANC, or Blanche, an island in the gulf of Mexico, near the coast. N. lat. 25°. W. long. 62° 14'.—Also, a river in the province of Casape, in the Audience of Mexico, in New Spain. Its water, though clear, is said to have a petrifying quality.

BLANCARD, Stephen, in Biography, was son of Nicholas Biancard of Leyden, by whom he was initiated into the knowledge of philosophy and medicine. At a proper age he went to Breeds, and thence to Franeker, where he took his degree of doctor in medicine about the year 1678. We soon after find him settled at Amsterdam, where he dedicated his time to the practice of his art. But principally to writing or comiing a great variety of anatomical and medical works, of which the most valuable, Haller says, is his "Anatomia practica rationalis," which was first published 1688, 12mo. But he has, in this work, introduced many observations taken from other writers, without acknowledging it. The cases here described are 200 in number, and, in general, curious and deserving notice. Geolitic, however, sect not only accurses him of plagiarizm, and of mutilating and spoiling the observations taken from other anatomists, but he blames him for publishing so many of his works in the Dutch, his native language, which cannot fail, in the end, he says, of being highly injurious to the profession of medicine, by enabling persons to practice who have not previously received a liberal education. This is, however, now done pretty generally all over Europe, and especially at the seat in this country, where there are so many persons practising in every branch of medicine who are incapable of reading any other language than their own, the laws here authorising any persons who may chuse it to practice medicine, without examination, excepting physicians and surgeons residing in the neighborhood of London, or of the two universities. We shall only mention one other of this writer's multifarious productions, his "Lexicon Medicum," containing explanations of all the terms used in medicine, surgery, and anatomy, first published in 1679, 8vo. This has passed through numerous editions, and lastly in 1777, by the care of Jac. Frd. Lenfhan, is increased to nearly treble its original bulk, making two large volumes. 8vo.


BLANCARDS, a name given to certain linen cloths thus called, because the thread used to weave them has been half-blanchetl or bleached before it was used. They are manufactured in Normandy, particularly in the places which are in the diocese, or under the jurisdiction of Pont-Audemer, Bernay, and Lisieux.

BLANCAT, St. in Geography, a town of France, in the department of the Upper Garonne; 4 leagues N.W. of St. Gaudens.

BLANCH, a cape on the French coast, N. W. of Calais, almost opposite to Dover, on the English coast.

BLANCH, or White Island, one of the large islands on the coast of France, lying along the shore of the projecting coast to the N. E. of Mauritius.

BLANCH, born, or BLANC farm, in Low, a white farm, that is, where the rent was to be paid in silver, not in cattle.
In ancient times, the crown-rents were many times referred to be paid in "libris albis" called blanche vernus; in which case the buyer was held denarius firmum; viz. his base money or coin, worse than standard, was melted down in the exchequer, and reduced to the fineness of standard silver; or instead thereof he paid to the king rate in the pound, by way of addition. In Scotland, this kind of small payment is called "blanch holding" or "redius albis firmus."

BLANCH und Lyon Pursuivant of Arms. This officer took his title from the arms and supporters of the Mowbray's, dukes of Norfolk (being rubies, a lion rampant, pearl) Thomas Howard, duke of Norfolk, instituted the office of blanche Lyon pursuivant 29 Hen. VIII. and he attended at the funeral of queen Jane. Blanch-lyon was also a name to an officer of the crown in the reign of Edward IV.

BLANCH, The, is the hill of Blaunt's tail the accomplished 1724. Lyons too and its relative of 1603 in the reign of James II. Lyons is also a name to an officer of the crown in the reign of Edward IV.

BLANCHARD, William, in Biography, an advocate in the parliament of Paris, was admitted to the bar in 1574, and much employed. Notwithstanding his professional labours he found leisure for literary researches, and in 1587 published a chronological table of the ordinances of the French kings of the third race, which was republished, with improvements, under the title of "A Chronological Compilation, containing a collection of the ordinances, edicts, declarations, and letters patents of the kings of France, relative to public justice, police, and the finances, from the year 537 to the present time," 2 vols. fol. 1715. The work abounds with accurate researches, and is a supplement to it being prepared by the author, when he died in 1724, Moreri.

BLANCHARD, Jacques or James, a painter of history and portrait, was born at Paris in 1629, and having been initiated in the first principles of painting in his own country, he travelled into Italy, where he studied for some time at Rome and Venice, and acquired, from particular attention to the works of Titian and of the Venetian school, distinguished excellence in the art of colouring, so as to have obtained the flattering appellation of the "French Titian." He was employed a considerable time at Turin by the dukes of Savoy, and afterwards painted several pieces at Lyons. Upon his return to Paris he was much engaged, and by his defeat of the Holy Spirit, and a St. Andrew's knelling, he had gained high reputation. Colouring was his peculiar excellence, and he was dastard worthy for his judicious management of lights and shades. His principal works, besides those already mentioned, are a galery at the hotel de Bourbon, of subjects from the heathen mythology, and the bacchaces in the salon of M. Mme. with some pieces at Versailles and Trianon. To Blanchard is ascribed the good taste for colouring which obtained in France. He is said to have etched several plates from his own compositions. He died at Paris in 1658, and left a son Gabriel, who was also a painter of eminence. D'Argenville. Strutt. Pitkington.

BLANCHE, in Botany. Somnunia describes a kind of fern, or brachycolea de mer, under this name, in his additions to Buffon's History of Birds. The plume and entirely white with the key and bill black. It inhabits the Cape of Good Hope, and may be placed in the Indian and southern climates. Latham calls this bird firna alba. BLANCHE-Carte. See Carte.

BLANCHE-Coffin. BLANCHE-Coffin, in Ornithology, is the corvus cyanus of Gmelin and Latham, in Buffon's History of Birds. It is likewise called in the same work gary de Cayenne, and by Latham the Cayenne Jay.

BLANCHE-RAU, the name of an artist, in Buffon's History of Birds to the liulaen furra molibaris, a native of Falkland island.

BLANCHE, Fr. for a mimin, in Muse, or a white note with a tail to it. See Musical Characters, and Time-Table.

BLANCHER, a name given to mechanics employed in blanching, i.e., the art or manner of bleaching or whitening.

BLANCHET, Thomas, in Biography, a painter of history, perspective, and portrait, was born at Paris in 1617, and first manifested a genius for sculpture; but on account of the weakness of his constitution he was advised to direct his attention to painting. Accordingly, having practiced for some time at Paris, he travelled for further improvement into Italy. By the counsel and assistance of Poussin and Andrea Sacchi, he applied to history painting, and on his return to Paris, he painted several pieces, particularly a picture at Notre Dame, much admired. At Lyons, where he afterwards settled, he became director of an academic school. During his absence from Paris, he was admitted, in 1670, into the academy of painting. Blanchet designed well, and understood the principles of perspective and architecture. His composition was rich, and his colouring natural; and though he was not always correct, his deficiency in this respect is imputed more to the fire of his genius and the rapidity of his execution, than to want of skill. His master-piece was the ceiling of the great hall in the hotel de ville at Lyons, which was unfortunately consumed by fire; and the accident is said to have affected him so deeply, as nearly to have cost him his life. The magnificence of Lyons rewarded him with a pension, and with apartments in the hotel de ville. His character was amiable, and his conversation lively and interesting, so that his company was much sought and valued. He died at Lyons in 1689. Some few of his pieces have been engraved. D'Argenville. Pitkington.

BLANCHET, in Ichthyology, the familiar French name of a sort of salmon that inhabits the American seas; salmo fenes of Linnaeus.

BLANCHET, in Zoology, the name of an amphibian known among the French naturalists of the present day by this name. The species is described as being of a white colour, without any spots; the body as consisting of 250 ramifications, and the tail of 16: on the head are 30, and 18 very small tubercles. The length is 18 inches, exclusive of the tail, which measures an inch and an half. This is a native of South America, where it feeds on ants and other insects.—Boie, from whom the above detail is copied, we are convinced, can mean to other than the amphibia alba of Linnaeus, when he describes this species. The Limnan character flatters the number of rings on the body of this kind at 225, in which particular alone the two descriptions seem to be at variance; and the inequity of that character is too well known to justify the opinion of their being distinct, for that reason only.

BLANCHING, in Gardening, is the art of rendering the leaves and seeds of various sorts of plants, as endive (cichorium), celery (apium), &c. white, tender, and succulent. It consists in producing a kind of vegetable delicacy or diliere, by depriving them of the stimulant effects or influence of light, and is accomplished either by carding them well up, or completely covering them, when perfectly dry, by boards, tiles, or other similar means, as will be more fully
fully explained in treating of the different plants that require this sort of management.

BLANCHING also denotes the operation of covering iron plates with a thin coat or crust of tin. See LATTEN.

BLANCHING of copper for sale, in imitation of silver; or mixing blanched copper with silver, or expelling the same to sale; or by malleable composition or mixture of metals, or minerals heavier than silver, and which looks, and touches, and wears like gold, but is manifestly worse than standard, is made feomy; 8 and 9 W. III. 

BLANCHING of wax. See Wax.

BLANCHING, in Geology, the operation of preparing the pieces before striking, to give them the requisite lustre and brightness.

The blanching, as now practiced, is performed by melting or heating the pieces in a kind of pan or vessel, with a woodfire, in manner of a reverberatory furnace, so that the flame passes over the vessel. The pieces being sufficiently heated, and cooled again, are put successively into two copper pans, wherein are aqua fortis, common salt, and tartar of Montpellier; when they have been well drained of this first water in a copper sieve, they throw lead and frith water over them; and when dry, they are all well rubbed.

The ancient method of blanching was, by putting the pieces, after heating, in a large vessel of common water; and some ounces of aqua fortis, but in different proportions for gold and silver. — The method is now diluted; partly by reason of its expensiveness, and partly because it diminishes the weight of the metal.

BLANC-JAUNE, in Ichthyology. Saimo niloticus, of Linnaeus, a fish of the salmon tribe found in the Nile, is called blanc-janine by some French authors.

BLANCAMERE, in Geography, a town of Brahaut, 2 miles S. of Breda.

BLANCKENBERG, Blankenburg, or Blakenberg, a town of Germany, in the circle of Upper Saxony, and county of Schwartzburg-Rudolstadt, seated on the Rine, 4 miles S.W. of Rudolstadt.

BLANCKENZ, in Zoology. Under this name the Linnaean Simia petrauris is described, both in Buffon's Natural History, by M. Allamand, and Sonminii, and in the history of Apes, published recently in Paris by Audebert. The prevailing colour of this animal is a very dark olive; the vige is black, with the exception of the nose, a remarkable snowy white spot of a triangular form being situated on the latter, which gives the creature a very singular appearance. The appellation of blanc-zee or Guenon blanc-zee, is very well applied, and might be rendered into English with much propriety, the white-nose monkey, if that name had not been previously assigned to another species by Mr. Pennant and Dr. Shaw. In the Zoology of the latter writer we are informed, that the distinguishing character of this white-nose monkey (Simia niloticus, Lin.) is the tip of the nose, which is milk-white, while the face itself is black. Dr. Shaw observes, however, shortly after, that the white-nose, in this species, is not absolutely peculiar, but is found in another; alluding, as we imagine, to his visting monkey, which answers to that description. The latter mentioned animal he considers as the Simia petrauris of Linnaeus, and blanc-zee of Allamand's edition of Buffon's quadrupeds, as Gmelin states them; and so far the correctness of the French naturalists appears in favour of his opinion. But, perhaps, it will admit of some doubt how far we may be authorized in believing still further with Dr. Shaw, that the Guenon blanc-zee of Allamand, and Sonminii, in Buffon's Natural History, and Guenon à nez blanc premier of the Supplement of that work, are of the same species. Dr. Shaw thinks the first of these must be the female, and the other

The male. Virek, and likewise Audebert, are persuaded that they are certainly distinct species. Guenon blanc-zee, they consider as the Linnaean; Simia petrauris, and Guenon à nez blanc premier, as Simia niloticus of the same author.

BLANCO, in Geography, the name of a cape of Africa, on the north coast of the kingdom of Tunis, called the "White Promontory," or, with the same meaning by the inhabitants, "Ras-el-abiad;" and supposed to be the "Promontorium candidum" of Pliny; and the "Promontorium pulchrum" of Liuy, where Scipio landed in his first African expedition. N. lat. 37° 5' E. long. 10° 18'. — Also, a small point to S. E. of cape Corfica, in the island of Corsica. — Also, a cape on the western coast of Africa, in Negro-land; first discovered by the Portuguese in the year 1441. N. lat. 25° 55' 30'. W. long. 17° 10'. high water 9' 4'. — Also, a cape on the western coast of the territory of Tichelin in Albania, opposite to the southern point of the island of Soio. N. lat. 35° 20'. E. long. 25° 3'. — Also, a cape of South America, on the coast of Brazil, between cape Roque on the north, and cape St. Augustine on the south, S. lat. 6° 30'. W. long. 35° 33'. — Also, a cape of South America, on the eastern coast of Patagonia, north of port D. feudal. S. lat. 47° 20'. W. long. 69° 42'. — Also, the north-western point of the bay of Saimas, on the coast of Nicaragua. N. lat. 12° 30'. W. long. 85° 48'. — Also, a cape on the north-west coast of America in New Albion, southward of the mouth of the river called the river of the west," between cape Gregory and point St. George, and at a further distance between cape Finchley and Mendocino. N. lat. 42° 30'. W. long. 128° 20'. — Also, a promontory of Peru, in South America, on the coast of the South Sea, 200 miles S. W. of Guayaquil. S. lat. 3° 55'. W. long. 83°.
In Camden's time it was mostly burnt by accident, but was soon rebuilt in an improved manner. The years 1678, 1712, and 1731 are recorded as peculiar calamities to this town, and in the latter year nearly the whole of it was destroyed. The church, town-hall, alms-house, free-school, and all the houses, but forty, were consumed. Many lives were lost, and the distressing calamity was greatly augmented by the small-pox, which raged in above sixty families. The computed damage was valued at 100,000l. but the chief terror, and injury that prevailed at the time, and which a few years destroyed the direful catastrophe, far exceeded all calculation, and dazed the powers of verbal description. The town has since been rebuilt, and its appearance much improved by some respectable houses, a new church, town-hall, &c. This is a neat building composed with Portland stone, and constructed on columns of the Doric order. Within the building is a pump which was erected by John Blandford, who having been a considerable sufferer by the fire, had this pump constructed to supply the town with water, and thereby to prevent another similar disaster. The new church, built in the Grecian style of architecture, consists of a body, a chancelf, a double aisle, and a tower. Its interior is very neatly ornamented, and contains several handsome marble monuments.

The charitable donations to Blandford are numerous and valuable, and are appropriated to endow an almshouse, to apprentice and clothe poor boys, to erect and support a charity school, two free-schools, and for other benevolent purposes. Blandford is 104 miles W.S.W. from London, and contains 458 houses, with 2566 inhabitants; at the east end of the town are the remains of a handsome old building, called "Dorothy court," which has been pillaged by many noble and distinguished personages.

Blandford is the birth-place of many celebrated characters: among whom the following are the most distinguished:—George Ryther, who was warden of New College, Oxford, in 1590, and vice-chancellor, in 1601; Brutus Ryther, author of the Mercury Rusticus, a singular book, recording many of the events of the civil wars. He also assisted in publishing the Polyglott Bible, was dean of Chichester, and Windham, and died at the latter place in 1677, aged 81 years; William Wake, archbishop of Canterbury, &c. was born here in the year 1617, and died at Lambeth in 1650; Thomas Croft, the translator of Lucertius, and other ancient chivalrous authors, was born here in 1659; Christopher Pitt, another translator, dates his birth at Blandford, where he was buried in 1748.

About one mile south of Blandford-forum is Blandford St. Mary, a village noted in the annals of literature as the birth-place of Browne White, the celebrated antiquary and topographer (see Willis). At the distance of one mile west of this town is Blandford-houfe, the elegant and commodious mansion of Edward Berkeley Portman, esq. This house was erected from the designs of James Wyatt, who has displayed much judgment and taste in the disposition of the apartments, the arrangement of the offices, and in the two principal façades. The river Stour winding in a broad sheet through the grounds, with the plantations and magnificent park, combine to render this a charming and delightful residence. Hutchins's History of Dorsetshire, second edition, vol. 1796.

Blandford, a township of America, in Lunenburg county in Mahon bay, Nova Scotia, settled by a few families. —Also, a township in Hampshire county, Massachusetts, west of Connecticut river; about 25 miles S.W. of Northampton, and 116 W. of Boston; containing 1775 inhabitants. —Also, a town in Prince George county, Virginia, about 4 miles N.E. from Petersburg, and within its jurisdiction. It contains 200 houses, and 1200 inhabitants, and is pleasantly situated on a plain, on the eastern branch of Appomattox river. Here are many large houses, and three tobacco warehouses, which receive annually 600,000 lbs. of tobacco. It is a thriving place; and as the muskets in variety are drafted, the air of this town, and that of Petersburg, are much indulged.

Blandina, in Lusonia, one of the Frisian tribes of Parthia, in the 1st insurrection; the wings of which are westwards, north, east, and south.

Blandina, in the Roman army, the daughter of two, who was slain in 187.

Blandford, a town in the county of Dorsetshire, England, containing 1678 inhabitants. —Also, a town in Prince George county, Virginia, about 4 miles N.E. from Petersburg, and within its jurisdiction. It contains 200 houses, and 1200 inhabitants, and is pleasantly situated on a plain, on the eastern branch of Appomattox river. Here are many large houses, and three tobacco warehouses, which receive annually 600,000 lbs. of tobacco. It is a thriving place; and as the muskets in variety are drafted, the air of this town, and that of Petersburg, are much indulged.

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BLA

BLANKENHEIM, a small town in Germany, and capital of a county of the same name, in the circle of Westphalia, and archbishopric of Treves. The prince, resident here, pays 64 florins a month, and 72 rix dollars, and 5$¼ krenzter to the imperial chamber; 36 miles N.N.E. of Treves. In the French arrangement it is the principal place of a canton in the district of Plum, and department of Sarre. The population of the place includes 500 persons, and the canton 3936. Its territory comprehends 19 communes.

BLANKENSEE, a lake of Germany in the circle of Upper Saxony, and middle mark of Brandenburg, 6 miles E. of Belitz.

BLANKENSTEIN, a town of Germany in a prefecture of the same name, in the circle of Westphalia, and county of Mark, seated on an eminence near the Rhine, 19 miles E.N.E. of Dusseldorf.

BLANKET, in Commerce, a warm woollen fort of stuff, light and loose woven; chiefly used in bedding. The manufacture of blankets is principally confined to Witney in Oxfordshire, where it is advanced to that height, that no other place comes near it. Some attribute a great part of the excellence of the Witney blankets to the abbatitive nitrous water of the river Windrush, wherefor they are secured; others think they rather owe it to a peculiar way of loofe spinning, which the people have about that place. Be this as it will, the place has engrossed almost the whole trade of the nation for this commodity; insomuch that the wool fit for it centres here, from the farthermost parts of the kingdom. Plott. Hist. Ox. chap. ix. § 163.

Blankets are made of felt wool, i.e. wool from off fleeces, which they divide into several forts.

Of the head wool, and bay wool, they make blankets of twelve, eleven, and ten quarters broad; of the ordinary and middle fort, blankets of eight and seven quarters broad; of the bell tail wool, blankets of six quarters broad, commonly called cuts, serving for flaxmen's hammocks. See HYKES.

Blanket, tossing in a, a ludicrous kind of punishment, of which we find mention in the ancients under the denomination fagatia. Martial describes it graphically enough. "Ibis ab excusis, misus ad altra. fago."

A writer less represents it as one of Otho's imperial delights. But this is turning the tables; that emperor's disorder, as related by Suetonius, was not to be the subject, but the agent in the affair; it being his practice to ill out in dark nights, and where he met with a helpless or drunken man, to give him the discipline of the blanket.

BLANKOF, John Teunisz, in Biography, a Flemish painter, was born at Alkmaar in 1628. After having spent some years in receiving instruction from Arent Terlingen, Peter Scheyenburg, and Caesar van Everdingen, he went to Rome, where he diligently copied the works of the best masters, and was admitted into the society of Flemish painters, called Bentvogels, by whom he was distinguished by the appellation of Jan Maat, signifying, in Dutch, mate or companion, and under which appellation, he is most generally known. His subjects were landscapes with views of rivers, or sea-flores, havens, or ports, which he executed with a light free pencil; and in the representations of storms and calms, he particularly excelled. None of his pictures that are principally commended, are the Italian sea-ports, with vessels lying before them. And his most capital performance is a view of the sea-shore with the waves retiring at ebb-tide; which Honbraken describes as admirably beautiful and natural. His imagination was lively, and his execution rapid. He died in 1670. Pilkingston.

BLANQUEFORT, in Geography, a town of France,
in the department of the Gironde, and chief place of a canton, in the district of Bordeaux, five miles north of Bordeaux. The place contains 2,929, and the canton 9,929 inhabitants. The territory comprehends 2,424 kilometres, and 28 communes.

BLANQUILLE, in Commerce, a small silver coin, equivalent to about 11.4 St. Germain, current in Morocco, and on the coast of Barbery.

BLAZAC, in Geography, a town of France, in the department of the Gard, and chief place of a canton, in the district of Nîmes, 14 miles S. W. of Nîmes. The place contains 4,040, and the canton 10,440 inhabitants. The territory includes 2,424 kilometres, and 28 communes.—Also, a town of France, in the department of the Gard, and chief place of a canton, in the district of Uzes, 3 miles S. W. of Uzes.

BLAPS, in Entomology, one of the Fabrician genera of coleopterus insects, the palpi of which are clavated, and four in number; jaws straight and bis; lip membranaceous and cleft; and the antennae moniliform at the tip. Fabricius includes in this genus some of the tenebroin of Linnaeus, such as tenebra gazex and mortigera. Gmelin adopts the genus only as a subdivision of Pimelia, in the Syl. Nat. See Pimelia.

BLAPSIGONIA, compound of Epstex, I hurt, and ?or, broad or wide, a kind of defective, or defect in bees, when they neglect or fail to produce young, being wholly employed in making honey.

BLARE, in Commerce, a small copper coin, containing a little mixture of silver, struck at Bern, and valued at much the fame with the Ratze in other places.

BLARINGEM, in Geography, a town of France, in the department of the North, and chief place of a canton, in the district of Hazebrouch, 7 leagues S. E. of St. Omer.

BLARNEY, a small market town of the county of Cork, and province of Munster, Ireland, situated on a river of the same name, about 4 miles W. of the city of Cork. In the reign of queen Elizabeth, its castle was reckoned one of the strongest fortresses in Munster, and it has often proved very troublesome to the inhabitants of Cork. It belonged formerly to the earls of Clancarty, but at present is the property of Mr. Jelfies, whose father built the town, and established several manufactories, of which Mr. A. Young has given a detail in the account of his tour through Ireland. These establishments, however, as too generally happens in like cases, have not been successful, and Blarney is not at present the flourishing town, which Mr. Young's prospect would lead us to expect. A paper-mill, a lamping-mill, a bleach-green, and one or two cotton manufactories still exist; and many lockings made in the neighbourhood are sold at the weekly market and in Cork, but all may be considered as on the decline. The castle and the grounds about it have been considerably improved, and the country around, as well as the park, is well watered. There is a lome at one of the corners of the top of the castle, which is thrown to strangers, on account of a saying, that any person who has killed it is privileged to lie and flatter. The origin of this saying, which is often referred to, and from which Blarney has become a vulgar synonym for flattery, the writer has not been able to discover. In the castle there is an original painting of Charles 12th of Sweden, at full length, drawn in the drafts mentioned by Voltaire, brought over by one of the family who had been envoy to that monarch. The adjoining country is mostly under corn and pasture; the soil is a yellowish clay, and is mostly manured with lime-flour, of which there is a vein that supplies large quantities. Smith's Cork. Young.

BLAS, St. a cape on the coast of the North Pacific ocean, near which, to the S.E., stands the town of Compostella, in the province of Galicia, in New Spain. N. lat. 21° 39' W. long. 105° 12'. See Blaise.

BLAS, a term, in the Helmontian philosophy, denoting the local and alternative motion of the fluids; from whole influence. Proceed changes of weather, feasons, storms, and the like.

In imitation of this blas fléllorum, the same author named another in animals, either natural, whereby each visus is framed according to the model of its particular; or voluntary, which is directed to motion by the will.

BLASCON, in Ancient Geography, an island of Gaul, mentioned by Pliny, situated at the mouth of the Rhone.

BLASE, St., in Geography, a town of Germany, in the archduchy of Austria, 6 miles S. W. of Steyr.

BLASENDORF, or BLASSENEL, a town of Transylvania, in the district of Weissenburg, the residence of the bishop of Walachia.


BLASII ZELLA, in Geography, a small town of Germany, in the circle of Upper Saxony, and principality of Gotha, separated in 1640 from the bailwick of Reinhards- brunn, and added to that of Schwarznot-wald; and famous for its foundry of fire-arms; 16 miles S. of Gotha.

BLASIMONT, a town of France, in the department of the Gironde, and chief place of a canton, in the district of La Rèole, 17 leagues E. of Blanmont, or 35 N. of La Rèole.

BLASUS, GERARD, in Biography, an of Leonard, physician at Amsterdam, who received pupils into his house, to instruct them in the knowledge of medicine, particularly in the anatomy of brute animals, of which he dissected a great variety. It was this which probably inclined Gerard to this branch of study, and gave birth to several of his works; such as his "Zootomia, seu Anatomiae variorum Anim. alium," published 1676; "Observationes animalic in homine, simia, equo, vitulo, ludentine, echino, gline, ferpete, serdca, varique animalibus sibis," Lugduni, 1674, &c.

After making some progres under his father, he went, for further improvement, to Copenhagen, and at length to Leyden, where he commenced doctor in medicine, about the year 1646. He then returned to Amsterdam, where he acquired so much credit and reputation for his skill in his profession, that in 1660 he was made professor in medicine in the schools of that city, and soon after physician to the hospital.

Besides a variety of original works, Blasius published new editions of parts of the works of Pliny, Th. Bartholin, Leconte, Bellini, Bordoli, and Willis, to most of which he gave notes and additional observations, containing such discoveries on the subjects treated of, as had been made since those works had been originally published. Of his original works, besides those mentioned above, we shall notice his "Oratio de noviter inventis," Amst. 1659, 4to. "Observa- tiones medicse rariorum, accedit triplici monlri historia," Amst. 1667, 8vo. in six books, containing accounts of the discovery of numerous moral bodies, in one of which, the spleen, and in another the gall bladder, were found to be misplaced; in one two stomachs were found, in another three vesicles. "Anatomia animalium terrestrium variorum volatilium, aquatilium, ferpentium, insectorum, ovorumque
fracturam naturalem proponens." Amst. 1661, 4to. The greater part of this work is collected from Severinus, Harvey, Malpighi, Willis, Bartholine, and other writers and journals. The work has, however, its utility, by bringing into a small compass a great number of curious facts, and observations, which were only before to be found by recurring to a variety of publications. In a letter published in the third century of Th. Bartholine's epistles, Blafuis claims the discovery of the ducus falsaris, which he says he first showed to Steno, then a young man. This has not, however, prevented the discovery from being attributed to Steno, the duc's taking his name. For the titles of the rest of the works composed or edited by Blafuis, see Haller. Bib. Amst. Med. et Chirurg. et Eley's Dict. Hist.

BLASKET SOUND, in Geography, lies on the west coast of Ireland, between the Great Blasket island and Dunmorehead, on the mainland of the county of Kerry. In this sound there is ten fathom water, and in the summer time and moderate weather a vessel may slip off the east end of the Great Blasket; but the ground will not hold well in blowing weather. In passing through this sound, it is necessary to attend to a pretty strong tide, and to a rock not far from Dunmore point, which is covered at high water.

BLASKETS, BLASQUETS, or Ferriter islands, a cluster of islands on the west coast of the county of Kerry, Ireland, being the most westerly land in the European part of the British empire. They are five in number, besides several rocks, some of which are always above water, and others are covered by high tidcs. These islands were given by the earl of Desmond to the family of Ferriter, from one of whose names it is taken; but at present they belong to the earl of Cork and Orery. The largest, called Innisfallen, i.e. the Great Island, and more commonly the Great Blasket, was visited by Dr. Smith, who found it inhabited by five or six families, and speaks in high terms of the faithfulness of its air. Ruins of churches, and cells or hermitages, are found in some of the others, but when Dr. Smith was there, they were not inhabited. The small rocks are frequented by sea-fowl, the feathers of which are collected by the people of the neighbouring coast. The hawks which are found here are remarkably good, and were formerly in much esteem. Amongst other sea-fowl the storm petrel (procellaria, Linn.) is common here. The Greater Blasket is 9 leagues S.W. by W. from Loughshin, the north point of the Shannon, and 5 leagues north of the Skelligs. The whole cluster lie between 16° 17', and 10° 31' W. longitude, and between 51° 58', and 52° 3' north latitude. Smith's Kerry.

BLASPHEMY, bl sphemia, or blasphenum, in Middle Age Writers, denotes simply the blaming or condemning of a person or thing. The word is Greek, blasphēmin, from blasphēma, bld. Among the Greeks, to blasphēne, was to use words of evil omen, or that portended something ill, which the ancients were careful to avoid, substituting in lieu of them other words of loftor and gentler import, sometimes the very reverse of the proper ones.

BLASPHEMY, is more peculiarly restrained to evil or reproachful words spoken of the Deity. Auguflus says, "Jam vulgo blasphemia non accentum nisi mala verba de Deo dicere." According to Landrew, blasphemy is an injury offered to God by denying that which is due and belonging to him; or attributing to him what is not agreeable to his nature.

By the Mosaic law, blasphemy was punished with death. Levit. chap. xxiv, ver. 13-16. As also by the civil law. Novel. 77. In Spain, Naples, France and Italy, the pains of death are not now inflicted. In the empire, either amputation, or death, is made the punishment of this crime.

By the canon law, blasphemy was punished only by a solemn penance, and by censum, either by pecuniary or corporal punishment. By the English laws, blasphemies against God, and religion, as denying his being, or providence, and all contumelious reproaches of Jesus Christ, &c. to which may be also referred all profane scoffing at the holy scripture, or exposing it to contempt and ridicule, are offences by the common law, and punishable by fine, imprisonment, and pillory. 1 Hawk. P.C. And by the statute law, he that denies any one of the persons of the Trinity to be God, or afferts there are more Gods than one, or, having been educated in, and having made profession of the Christian religion, denies, by writing, printing, teaching, or advising speaking, Christiannity to be true, or the holy scriptures to be of divine authority, for the first offence is rendered incapable of any office or place of trust; and for the second, adjudged incapable of bringing any action, being guardian, executor, legatee, or purchaser of lands, and to be imprisoned for three years without bail. 9 and 10 W. III. c. 32. To give room, however, for repentance, if, within four months after the first conviction, the delinquent will in open court publicly renounce his error, he is discharged for that once from all disqualifications.

According to the law of Scotland, the punishment of blasphemy is death. The first species thereof consists in railing at or cursing God, and here the single act constitutes the crime. The second consists in denying the existence of the Supreme Being, or any of the persons of the Trinity; and therein obliquely perverting to the laud. For reiterated denial does not fully constitute the crime, because the flat. of Charles II. 1661, admits of repentance before conviction as a complete expiation.

This statute of 1661, is ratified by a statute of king William, whereby the calling in question the existence of God, or of any of the persons of the Trinity, or the authority of Scripture, or the Divine Providence, is made penal. For the first offence, imprisonment till satisfaction given by public repentance in fullcloth. For the second, a fine of a year's valued rent of the real estate, and twentieth part of the personal estate: and the trial in both these cases is competent to inferior judges. The punishment of the third offence is death, to be tried only by the justices.

BLASPHEMY against the Holy Ghost. Divines are not agreed with respect to the nature of the crime thus denominated, Matthew, xii. 31. Mark, iii. 28, 29. Luke, xii. 10, and the grounds of the extreme guilt ascribed to it. On this subject it may be observed in general, that from our Saviour's expression this sin appears to consist, and to be completed, not in our thoughts, nor in our words, but in our words. Nor, indeed, is the epithet "blasphemous," or any synonymous term, ever joined in scripture, as is common in modern use, with doctrines, thoughts, and opinions. It is never applied but to words and speeches. A "blasphemous opinion," or "blasphemous doctrine," are phrases, which, however familiar to us, are an unfriendly term to the scripture idiom, as a "railing opinion," or "flaiderous doctrine," to ours. It may be also observed, that this blasphemy is not of the constructive kind, but direct, manifest, and malignanl. It is mentioned as comprehended under the same genus with abuse against man, and contradistinguished only by the object: and it is further explained by being called "speaking against," in both cases. The expressions are, in effect, the same in all the gospels, where
it is mentioned, and imply such an opposition as is both intentional and malevolent. This could not have been the case with respect to all who disbelieved the million of Jesus, and even deemed his miracles; many of whom, we have reason to think, were afterwards converted by the apostles.

The learned Grotius, in order to mollify the severity of the sentence denounced against this sin, suggests, that what our Lord expresses absolutely, must be understood comparatively; and that he only designed to intimate, that it is very difficult to obtain the pardon of this sin, but not that it will admit of no forgivenes. But our Saviour here favours expressly of this sin, whatever it was, both negatively, that it shall never be forgiven, and affirmatively, that the person guilty of it shall be obnoxious to eternal judgment, confirming the whole with an accentuation. Dr. Waterland (see his Serm. vol. ii. N° 9. p. 177—183.) seems to incline to Grotius's opinion; alleging that signifies only exceedingly difficult. Dr. Hammond comments upon the words with observing, that this sin shall not be pardoned, but upon a particular repentance; but this is true of every sin as well as of the blasphemy against the Holy Ghost. Some have made this crime consist in final impenitence, because that is unpardonable; but it is not easy to assign a reason why this should be called the sin against the Holy Ghost. Others have represented it as, in its specific nature, a wilful and obstinate opposition to the truth; others again as a malicious opposition to the truth, on the part of those who know and are convinced that it is the truth; whilst some have supposed it to consist in a renunciation of the truth for fear of suffering, which made Francis Spira think that he committed this sin. Mr. Wakefield, in his Notes on the Revelation of the Gospel of St. Matthew, p. 178, is of opinion, that what is meant by the blasphemy of the Spirit appears from the context to be perverted resorting and believing with contumacy, against plain and satisfactory evidence, the operation and interference of the holy spirit of God; and he thinks, that those men who reject the Christian revelation, without contemplating its claims with diligence, candour, and exactness, upon a precipitate pre- determination of its falsehood; and those, who refuse their affections to that degree of moral evidence, of which alone these subjects are capable, and which they would think sufficiently satisfactory in other causes, and in the ordinary occurrences of life, are as much guilty of the sin of blasphemy in our times, as those cavilling and hypocritical Pharisees were in the days of Christ.

Dr. Tillotson (vol. i. term. xvii.) maintains, that this sin, of which the Pharisees were guilty, confused in maliciously attributing the miraculous operations which Christ performed by the power of the Holy Ghost to the devil. This sense is adopted by bishop Pearce, in his Commentary on the four Evangelists, vol. i. p. 85. But Dr. Whitby, with greater probability, refers it to the disputation of the Holy Ghost, which commenced after our Lord's resurrection and ascension; and those were guilty of the crime, who perfided in their unbelief, and blasphemed the Holy Ghost, representing him as an evil spirit. The crime was unpardonable, because it implied a wilful opposition to the last and most powerful evidence which God would vouchsafe to mankind, and precluded the possibility of a recovery to faith and repentance. Whitby's Fourth Appendix to the Gospel of St. Matthew, in his Paraphrase, vol. i. p. 289.

Of this sin, it is said, it shall not be forgiven, either in this world or in that which is to come. With regard to the meaning of this expression, it is observed both by Lightfoot (Hor. Heb.) and by Grotius (in loc.), that through a fond imagination of the final happiness of all the seed of Abraham, the Jews supposed, there were some sins that had not been forgiven here, which would be expiated by death, and be forgiven after it; and that our Lord designed by this expression to assure them, that there was no forgivenes for those who should be guilty of this sin, either before or after death, and that their expectations of forgivenes then would prove no other than a deceitful dream. Dr. Whitby, however, has clearly shewn, that this was used as a proverbial expression, and that it only signifies, "a thing should never be," when it was said, "It shall not be, either in this world, or in the world to come." Others, however, among whom we may reckon bishop Pearce and Mr. Wakefield, have thought that the expressions of "this world," and "the world to come," denote the Jewish and the Christian dispensations. "O amen, and so say all," fays these writers, signify in the New Testament the Jewish age or dispensation, which continued till the abomination of the Jewish polity, civil and ecclesiastical, by the destruction of Jerusalem under Titus; and the same ov., or the future age, denotes the Christian dispensation. Bishop Pearce adds, that under the Jewish law, there was no forgivenes for wilful and presumptuous sins; concerning which he refers to Numb. xx. 30, 31. xxxv. 31. Lev. xx. 10. and 1 Sam. ii. 25. With regard to the age to come, or the Christian dispensation, the bishop observes, that no forgivenes could be expected for such sinners as the Pharisees were; because, when they blasphemed the Spirit of God, by which Jesus wrought his miracles, they rejected the only means of forgivenes, which was the merit of his death applied to men by faith, and which under Christianity was the only sacrifice that could atone for such a sin; in this sense, as things then stood with them, their sin was an unpardonable one. But, he adds, it is not to be concluded from hence, that, if they repented of this blasphemy, they could not obtain forgivenes. Mr. Wakefield observes, that the unrevoked affirmation in Matt. xii. 32. must be interpreted, as well as the preceding verfe, with considerable qualification. Our a z. t. a. n. will not be forgiven, will not be deemed a common and natural fault, agreeably to the eastern mode of expression, which constantly requires such limitation. Accordingly he thus gives the general sense of this verse. "Offences of the most heinous nature, even reproach and injustice against the anointed prophet of God, may more readily find pardon, than contumacious blasphemy of the Holy Spirit." This aggravated sin, the result of obstinacy, depravity, and malice in the extreme, will have no title to forgivenes, even from the clemency and mercy of the Christian revelation, a revelation of pardon and peace, in the fullest fende, and to the whole race of men. See Heb. vi. 4—7. Nevertheless, "will not any fins be pardoned on sincere repentance, and deliberate purposes of amendment, under that encouraging dispensation, which breathes in. May, but reconciliation and forgivenes—nothing but favour, mercy, and peace, from God our Father, and our Lord Jesus Christ?"

BLAQUES ISLAND, in Geography, lies on the west coast of Newfoundland, in about 47° 35' N. lat.

BLA.ENT, in O. a. t. h. The common wold duck is called by this name in the vicinity of the lake of Constance.

BLA.ente, (Fr. bleu. a.) a name synonymous with nu a Pl. 18, and common u. ge. of English writers.

BLA. STE, in the Military Art, a sudden compre- hension of the air, caused by the discharge of the bullet out of a great gun. The blast sometimes throws down part of the embrasures of the wall.
BLAST.

Blast is also applied, in a more general sense, to any forcible stream of wind, or air, excited by the mouth, bellows, or the like.

Blast, in Agriculture, a disease in grain, trees, &c. See Blight.

The sugar-cane in the West Indies is subject to a disease called the blast, and said to be occasioned by the abis of Linnæus, which is distinguished into two kinds, the black and the yellow; and of these the latter is the most destructive. It consists of myriads of little insects, invisible to the naked eye, whose proper food is the juice of the cane, in search of which they wound the tender blades, and consequently destroy the stools. Hence the circulation being impeded, the growth of the plant is checked, until it withers and dies in proportion to the degree of the ravage. It is frequently affirmed, says Mr. Bryant Edwards (Hist. West Indies, vol. ii. p. 315.) that the blast never attacks these plantations where coloquies have been introduced of that wonderful little animal, the carnivorous ant, or "formica omnivora" of Linnæus, called in Jamaica the "ruffles ant," from its being supposed to have been introduced there by one Thomas Reeves from the Havana, about the year 1762. These minute and busy creatures soon clear augar plantation of rats; and their natural food seems to confine all kinds of insects and animals.

First Blast. See Blight.

Blasts, among Miners. See Damps. See Mines, and Mining.

Blast, the term used at iron founderies to denote the column of air introduced into the furnace for the purpose of combustion. Its velocity is occasioned by the impelling power of the blowing machine forcing the whole contents of the air-pump through one or two small apertures called nole-pipes; and, according to the absolute power of the engine, air of various densities will be produced, so that density and velocity are always intimately connected, and mutually implied.

The well-known combustibility of iron, and the indispensible necessity of exciting combustion by the introduction of large quantities of oxidized air into the furnace, in contact with ore in various stages of maturity as to separation, into contact with iron existing in all the modifications of quality as to carbonation, and into contact with an immense body of ignited fuel, render this subject the most important in the major scale of our manufactures. Unfortunately for art, as well as for science, few practical deductions can be brought forward to establish any one theory of blast; one common principle only is acknowledged, that all reduction in the furnace is in consequence of the combustion excited by the column of air introduced.

To take a proper view of this interesting subject, it will be necessary to submit it to the following divisions.

1st. Combustion, as excited in this particular branch of manufacture.

2d. The nature of the fuel submitted to combustion.

3d. The density of the air.

4th. The quantity.

5th. The properties which follow as a consequence of density and quality.

6th. Combustion in the blast furnace consists chiefly in the rapid reduction of a given quantity of solid fuel, and its accompanying portion of ore, in the shortest possible time. That furnace, and that blast, which can, in a given time, reduce the greatest quantity of fuel, all things else being alike, will always manufacture the greatest quantity of iron. In common, before the introduction of the blast, the furnace is previously filled with alternate strata of coke, iron-flone, and limestone, heated by simple atmospheric pressure to a bright red or white heat, and the iron flone to a melting heat. This temperature is soon increased throughout the furnace, after the blast is applied. The blowing orifices or tuyeres of the furnace exhibit the fuel increasing in whiteness, and the iron-flone rapidly dissolving before the blast, of a blackish colour. At this period, the lava which flows from the furnace, in consequence of the reduction of the ore and lime-flone, is considerably charged with iron, and is of a black, blackish brown, or greenish brown colour. This appearance will continue for twelve, twenty-four, or thirty-six hours, according to the mode of treatment in bringing forward the furnace after blowing. The tuyere (if a bright tuyere furnace) will appear like a blaze of uncommonly pure light, at times very offensive to the eye; but, however, becomes accommodated to it, and may, with facility, discern the individual masses of coke, as they are forced away, with the rapidity of lightning, before the irresistible force of the air. The concrete ore and lime-flone are no longer visible; but a fine metallic spray is constantly descending, and, forced from the fuel, precipitates itself to the bottom of the furnace. The scoria formed by the fusion and union of the lime-flone, with the metallic parts of the ore, is carried before the blast in a similar manner and form, but easily distinguishable from the fluid metal by its buoyancy, want of velocity when impelled, and by its dull colour. In this state, the furnace is deemed in excellent smelting order. The iron is generally revived with little losses; and the colour and purity of the cinder or lava sufficiently indicate the perfection of the separation. When at any time the brightness of the tuyere fails, and becomes dull white or reddish white, then a change is indicated; the iron-flone and lime-flone will again appear in the solid unseparated state, and the change of colour in the cinder infallibly betokens an irregularity in the movements of the furnace. These appearances are so general, as scarcely to admit of an individual exception, and are sufficient to warrant the following explanation.

At the introduction of the blast, the interior of the furnace at the tuyere was simply a mixture of ignited masses of coals and iron-flone, the latter partly limonmed, but the greatest part merely heated to a bright red heat. In the deficient through the furnace, in contact with ignited coke, the particles of metal in the ore may, by parting with the oxygen, have received a disposition to become revived. The increased temperature creates an additional tendency, by establishing a greater force of affinity between the fuel and the iron. But the metal approaching to its proper state, meeting the current of blast, is immediately subject to a partial combustion. The portion thus oxidized conveys to the lava in proportion to its quantity and oxygenation, the colour already mentioned.

As soon as the continuation of the blast conveys a higher temperature to the superior regions of the furnace, the appearance of the solid matter at the tuyere ceases. The fusion and separation of the metal from the ore are effected in situations more remote from the blast, orchief source of decomposition in a temperature more fitted to the nature and existence of the metal. The iron, once formed into a fluid, and its fluidity preferred, its defeat to the blast is attended with little or no injury to its carbonation.

To understand this distinctly, it will be necessary to state two curious facts relative to call iron in a fluid state; and but for the existence of these properties, the manufacture of the metal in open furnaces or vellums would be totally impracticable. 1st. Call iron, while kept fluid, never decomposes atmospheric air, and never itself becomes oxidized. 2d. The degree of carbonation paffed upon the metal at the moment
moment it enters into complete fusion, continues without diminution or augmentation throughout the whole operation of the furnace; or, in other words, call iron neither receives nor loses carbon whilst it preserves its fluidity. The first fact explains the reason why the iron is preferred from combustion, when it defuses opposite to the current of blast. The second is a proof that the carbonaceous matter is conveyed to the iron in the furnace by a species of cementation previous to fusion; and that after this point, call iron will not take up any addition of carbon.

To preserve and establish the relation of cementation and fusion in the furnace ensures uniform products. Combustion in this prefers us with a gradation of temperature, diminishing from the tufure upwards through thirty or forty feet of ignited matter. The inferior temperature towards the top of the furnace heats the materials to reduce; an affinity is here commenced between the carbonaceous matter and the oxygen of the ore; the latter is gradually removed, and a second affinity is instituted between the de-oxygenated particles of metal and the carbon; this, as the ore defuses to higher temperatures, is rapidly increased, and by and by the saturation of the coaly principle is complete. As the saturation of carbon always increases the fusibility of iron, the metal of the furnace enters into fusion at a comparatively low temperature, and speedily precipitates, through the high temperatures in the neighbourhood of the blast, to the general reservoir below.

It is not, therefore, necessary to suppose, that the great volume of air thrown into the furnace, and the great temperature of course excited, are necessary to the manufacture of the iron, so far as it regards quality; this, it is more than probable, may be injured by it, and even the economy of the manufacture itself. Quantity, however, is in general secured; but this is more the effect of mechanical reduction, than of any necessary operation of the blast upon the ore and materials above.

The quicker the body of cokes can be reduced, which occupy that part of the furnace between the point of separation and the tufure, the greater will be the reduction of the whole, and the greater the quantity of manufactured metal. To this point the whole force of the blast is directed; here the chief part of the decomposition of the atmospheric air takes place; and here the destruction of the intervening cokes is effectual, and at the same time in proportion to the quantity of air poured upon their highly ignited surfaces.

If we assume, with a blast of a certain density, any two points in the furnace, the one as the point of decomposition, and the other of separation and fluidity of the metal, suppose the former at the tufure, and the other at the lower end of the blastpipe at A. (See description of Blast furnace,) then it must be allowed probable, that a change taking place in the density, or even in the quantity of the blast, that change will affect not only the points themselves, but also their relative distances. The point of separation may be brought nearer (and perhaps injuriously so) to the level of the blast, the elevation of which is supposed to remain the same. The contrary may with equal truth be inferred; that if the point of separation is carried to a more elevated situation by a change or increase of temperature, the ore may enter into fusion before it has remained sufficiently long in contact with the ignited fuel, and thereby both the quality and quantity may be injured.

2d. Since pit-coal coke became the staple fuel at the blast furnace, the density and quantity of air deemed necessary to secure combustion and quantity, have been yearly increasing. The various qualities as to hardness or softness, purity and effect, have given rise to a multitude of opinions, which are the most appropriate quantity and density of air for respective qualities of coals. The blast of the furnace, in consequence, has at different places varied from 1 to 2 lb. of expansive force upon the square inch of the air vent. Most of the English works are blown with air not exceeding 2 lb. upon the square inch, as being the most proper medium of density, and beyond which the materials would be over-blown. English coal, in general, is soft in its fusible state, but rich in carbon, and free from mixture. In Scotland, where the coal is found in dense strata, and forms heavy coat, the blast is used from 2 lb. to 4 lb. per inch. Those who have adopted dense blends declare, that quantity of iron is incompatible with a column of air inferior to the measure of their standard. Either the prejudice is very general, or there really must exist a direct analogy between the nature of the blast and the density of the coal.

The operations of the charcoal pig manufactory were conducted with blasts of a trifling density, seldom exceeding ½ lb. upon the inch, and often under this. Dense blast, it was believed, over-run the furnace, most probably by exciting too great a temperature, and frequently had a tendency to discharge the materials from the furnace top. There never yet have been any direct experiments made to ascertain upon what this variety of pitch-coal depends; whether exclusively from its density, or from containing the carbonaceous matter in more purity or greater disengagement. Perhaps both are necessary to be taken into account, before any satisfactory explanation can be given of the facts now flated and generally admitted.

3d. The density of a column of air depends upon the power of the blowing machine, and the proportion of the area of the steam cylinder to that of the blowing cylinder. Tables of the powers of steam engines, and the diameters of cylinders requisite to condense air from ½ lb. to 3 lb. upon the circular inch, will be found under the article Blowing Machine. It will appear evident from these tables, that steam cylinders of the same diameter, and working at the same power, when employed to raise air of various densities, do not discharge the same quantity of atmospheric air in any given time. The larger the area of the blowing cylinder, the number of strokes being the same, the greater will be the quantity of air discharged into the furnace. The reverse is the case with blasts progressively more dense; so that any part of an engine's power may be employed, not in raising the true principle of combustion—air, but in condensing a comparatively small body of air, so as to give it additional velocity.

To fix the point, or maximum, of the most profitable density, has hitherto been unattainable. The circumstances deemed intimately connected with coal, render it necessary to accommodate the blast to the combustibility of the fuel; and were it not the case, it would be difficult to overturn the following reasoning, and to exhibit an instance where it might not be found generally applicable. Combustion in the furnace will be excited in proportion to the quantity of air introduced. A blowing machine, that with the same power of steam cylinder threw into the furnace double the quantity of air, though of an inferior density, would reduce a greater quantity of combustible matter than one oppositely constructed; or, in other words, 5000 feet of air per minute entering a furnace would produce greater effects than 2500 feet, although the latter were compressed into nearly half the bulk of the former.

The most plausible theory of blast is to fix upon the lowest density at which the air can be forced into the furnace, and then proportion the diameter of the air pump to the power of the steam end. Suppose that this could be effected at half the density usually employed, then that part of the engine's
engine's power used formerly to compress the air to 3 or 4 lb. would now be employed in a blowing cylinder of larger diameter, raising per minute, or indeed per stroke, from 100 to 200 cubic feet of air. Opposed to this there stand two formidable objections, resulting from the necessity of using blow-pipes or nozzles of increased diameters, from which to discharge the additional quantity of air, making up in area what is wanting in velocity to discharge the air in a given time. The first is a reaction of the air, so powerful as to force back from the tuyere with a velocity little short of that at which it enters. This, with no-pipe of 2, 2½, and from that to 3 inches, is scarcely felt when the blast is 40 ft., and may be entirely obviated by a judicious arrangement of the tuyere iron and no-pipe. But with pipes from 3 to 4 and 4½ inches diameter, the recoil increases as the squares of the diameters of the blow-pipes, and even in dense blast the recoil increases with the diameter of the discharging pipe. It is therefore probable, that to blow with a no-pipe 4 or 5 inches diameter, so as to have no recoil, a velocity or density of air would be requisite beyond any thing yet in use.

Those who advocate for the use of a soft blast, either upon the plea of their materials, or as being the most advantageous method of using any given mechanical power, frequently feel the full effects of the recoil of a considerable portion of the whole blast. But to obviate this, and to gain the advantage of the whole air, the blow-pipe is enclosed in a moveable frame or building, which is made air-tight at every cast, and completely prevents the return of the smallest portion of it. The combustion at these furnaces is carried on with equal effect, and the resulting products in iron equal in point of quantity and quality to those where blasts of double density are used.

Again, at other furnaces, where a soft blast had been originally preferred, the plan of forcing back the recoiled air, in order to make up in quantity what was now deemed to be deficient in density or velocity, has been in vain attempted. The tuyere irons have become immediately heated, and burnt back with violence. The materials would not admit of the tuyeres being raised sufficiently high to prevent the cinder from flowing back into the bag, which connects the large and small pipes, and destroying it. Even in more than one instance, the entire tuyere side of a furnace has been lost in endeavouring to establish this plan of blowing, where either the materials would not answer, or from some misconception in the mode of operating. Where a furnace works uniformly with a dark or honey-combed tuyere, this mode of blowing may be attended with the greatest success. In all new erected, however, the blast ought to pass at such a velocity that all the nozzles sufficiently so as to offer a resistance to the cinder passing through the furnace without decomposition. The point of separation may by this means be changed, or perhaps be raised too high for the preservation of the metal, immediately previous to separation. As the increased temperature prevails upwards, the affinity between the particles of metal in the iron-furnace, and the carbon of the fuel, may be earlier established, and no ultimate evil consequence, in point of reasoning, ought to ensue. It appears from numerous observations, that the quantity of iron-furnace, which a given weight of cokes smelts, and to the metal of which is conveyed the carbonaceous principle, is considerably dependent upon the diameter of the blowpipe. Supposing the ore of equal richness, the smaller the pipe, the greater burden will the coke carry, and the cheaper will the iron be made per ton, so far as materials are concerned. On the contrary, with large pipes, whatever the density of the air may be, the quantity of coals necessary to manufacture an equal quality of pig iron will be increased, and the cost of the iron is also increased. As an equivalent for this, however, the quantity is considerably increased with nearly the same amount of labour; so that it remains a question with the manufacturer, whether the additional cost of coal is compensated by the extra produce of metal he is enabled to bring to market. 4th. The quantity of air discharged into the furnace, under the application of blast, depends upon the number of strokes or cylinders which the engine makes per minute, and on the area and diameter of the air pump. This is independent of any consideration of density and increase of power in the steam cylinder, so long as the blowing or air cylinder remains the same, and the engine performs the same discharges; the measure of atmospheric air, which enters the furnace, will remain the same. The rapid improvements, which of late years have been made in the blowing machines, have increased the quantity from 1000 to 4000 feet per minute; and the quantity or produce in iron has been also considerably increased. We by no means, however, find that the increased manufacture of iron has been in the exact ratio of the quantity of blast thrown into the furnace. Many influences of late years have been noticed during the transition from the old to the improved modes of blowing, wherein the proportion has had little or no similarity.

Fifteen hundred feet of atmospheric air in one minute was found in most situations equal to the manufacture of twenty tons of melting iron; in the same situations, 3000 feet in the same time has never exceeded thirty tons per week; and in one particular trial for two weeks, the discharge of 6000 feet, being the whole produce in air of the engine, the produce in iron never exceeded 36½ tons. In the last case, the quality of the iron was irregular, and the quantity of cokes for each ton of metal thus produced was considerably increased, although the iron was of inferior carbonation.

Without recurrence to the diameter of the air cylinder, and the particular movements of the engine, the facts have been frequently deduced from the diameters of the nose-pipes. We have frequently seen air discharged under a pressure of 2½ lb. upon each square inch, but with a pipe of 2½ inches diameter, reduce materials, and manufacture good melting iron to the extent of 20, 22, and 25 tons per week; and in the same furnace, and with the same materials, the air discharged by 2 pipes, each 2½ inches, under a pressure of 3 lb. upon each square inch, the produce never exceeded 30 tons of metal of an equal quality, but more frequently 25 to 28 tons. One observation still more direct, and made with a blast of a density equal to 2½ lb. per inch, and discharged by one pipe of 2½ inches diameter, frequently manufactured 22 tons fine melting iron weekly; another pipe was added to the opposite tuyere of the same diameter, and the quantity of metal weekly was never increased beyond 32 tons, and upon an average of six months only 27 tons. These are curious facts relative to the nature and effects of blast, and exhibit the investigation of its principles as a matter of singular importance in the economy of the manufacture.

One remark was made relative to the burden of ore in the last rated fact, that, with the small pipe a given weight of cokes smelted and carbonated the metal in 3 cwt. of iron-
From quantity and density of air, there may and do result peculiar properties of blast, which may affect the operations of the furnace, and which once fully understood may help to explain the facts hitherto unaccounted for, and which we before noticed. Facts resulting from accurate observation would prove an invaluable source of information upon this subject; and it is with regret that we can furnish no perfect aerological table of the different temperatures of air under different densities or degrees of compression. The following, we believe, contains the only collection of temperatures hitherto noted; and as it relates to only one degree of compression, the satisfaction it affords must be only partial.

**TABLE of 30 observations made in summer upon various temperatures of air before and during the act of compression, compared with the thermometer in the shade.**

<table>
<thead>
<tr>
<th>Temperature of the air</th>
<th>Temperature of the air surrounding the receiving vent</th>
<th>Temperature within the blast pipe</th>
<th>Temperature in the blast pipe at the blast pipe stop</th>
<th>Increased cord of temp. between the surface of the iron and that of the blast pipe</th>
<th>Temperature of the external air in the shade</th>
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There can arise no doubt, but that heat is extricated by condensation from atmospheric air; and that it is further probable, that the quantity of heat difengaged is in proportion to its condensation. If, therefore, we are allowed to reason upon this subject, we should judge the following as a considerable approximation towards truth. It is universally believed and felt, that combustion in the blast furnace in June, July, and August, is considerably diminished, as a consequence of the increased temperature of the air. The metal, in these months, is frequently detected in point of carbonation, and diminished nearly one-half in point of quantity. We shall suppose that this takes place at a temperature of 100°, which has been proved to exist under a preussure of 21 pounds. The reverse of this happens in the cool season of the year, and particularly in the winter months. The furnace then yields the largest quantity of iron, and in the most profitable manner. This, with the same probability, takes place at a temperature of 50° found in the table.

It would therefore appear to result from these, that two-thirds, or one-half of the iron only, is manufactured at a temperature of 100°, than in winter at 50°. The difference between these degrees of temperature amounts to 50°, and most probably in combustion affects the operation as sensibly as the human frame is affected by a transition of temperature equal or similar. It is not necessary now to state the difference between summer and the winter air of our winter, the circumstances of evaporation and aqueous solution; these shall be particularly attended to in the general process of manufacturing iron. The great difference of temperature arising simply from compression seems to us adequate to explain many phenomena regarding the blast furnace. Our knowledge, however, upon this subject, can only be forwarded by a general collection of facts well ascertained, showing what are the various degrees of heat made sensible by the compression of the blowing machine under every density; what the difference in temperature, the densities being alike, when the air is received over water, in the air-vault, or in the regulating cylinder. From these it might most probably result, that the higher the density of the air, the greater would be the degree of heat manifested; and it might also follow, that in the ratio of this density, or temperature, when the air was received over water, fo would be the evaporation or quantity of water suspended in the air, and of course discharged into the furnace.

This article may be concluded by the following remarks:—That all iron works are not alike affected by the heat of the summer months. Many iron works preserve the quality of the iron, though at the expense of fuel, and with losses of quantity; but at other places no extra quantity of fuel will compensate, either as to quality or quantity, for the want of cool air. Neither the heat nor density of blast will explain this curious circumstance; for with blast of equal density and quantity, works situated not 50 feet above the level of the sea have been found to manufacture a greater quantity of soft iron in summer, than at a similar work, not ten miles distant, situated at least 250 feet higher. At both of these works the air is received over water; and no material alteration in the use of that air is or can possibly be applied. The causes of this difference must be sought for in the nature of the coal and iron-stone used at both works, the investigation of which, however interesting, would prove a most laborious undertaking.

**Blast Furnace.** A large conical or quadrangular building used at iron works for melting iron-stones and ores.

**Blast Furnace.** Description of.

Plate (Chemistry) II. Fig. 1. represents a blast furnace, and part of the blowing machine constructed upon what at one time was the general plan at iron works.

A, the regulating cylinder, eight feet in diameter, and eight feet high. B, the floating piston loaded with weights proportioned to the power of the machine. C, the valve by which the air is passed from the pumping cylinder into the regulator; its length 26 inches, and breadth 11 inches. D, the aperture by which the blast is forced into the furnace. Diameter of this range of pipes 18 inches. The wider these pipes can be with convenience used, the less is the friction, and the more powerful are the effects of the blast. E, the blowing or pumping cylinder, fix feet diameter, and nine feet high; travel of the piston in this cylinder from 5 to 7 feet per stroke. F, the blowing piston, and a view of one of the valves, of which there are sometimes two, and sometimes four, distributed over the surface of the piston. The area of each is proportioned to the number of valves, commonly they are 12-16. G, a pile of solid stone building, upon which the regulating cylinder rests, and to which the flanges and flints of the blowing cylinder are attached. H, the safety valve, or cock, by the simple turning of which the blast may be admitted to or shut from the furnace, and passed off by a collar pipe on the opposite side. I, the tuyere
by which the blast enters the furnace. The termination of
the tapered pipe, which approaches the tuyere, receives small
pipes of various diameters from two to four inches, called
hole-pipes. These are applied at pleasure, as the furnace
may be deemed to require an alteration in the volume or
density of the blast. K, the bottom of the hearth, two feet
square. L, the top of the hearth, two feet six inches square.
K L, the height of the hearth, six feet six inches. L is the
bottom of the boles, which here terminate of the same
size as the top of the hearth, only the former are round, and
the latter square. M, the top of the boles, twelve feet diame-
ter, and eight feet of perpendicular height. N, the fur-
ace top, at which the materials are introduced, or, as it is
called, charged; three feet diameter. MN, the in-
ternal cavity of the furnace from the top of the boles up-
wards, 30 feet high. NK, total height of the interior of
the furnace, or working part, 44'4 feet. OO, the lining.
This is done in the most manner with fine bricks, from
two to fourteen inches long, three inches thick, and
tapered to fuit the circle of the cone. PP, a vault which is
left all round the outside of the first lining; three inches
broad. This is sometimes filled with coke dust, but more
often with sand firmly compressed. This space is allowed
for any expansion which might take place, either in an
increased volume of the furnace itself in heating, or by the
preasure and weight of the materials when defending to the
furnace bottom. OO, the second lining, similar to the first.
The object of this is to guard against the entrance of the
flame into the mafs of common building, by rents which
might take place in the first lining OO. Q, a cast-iron hoist,
on which the bottom of the arches is supported, eight feet
and a half long, and ten inches square. RS, the rife of the
tuyere arch, fourteen feet high on the outside, and eighteen
feet wide. VV, the extremes of the hearth ten feet square.
This and the bolting flones, are commonly made from a
coarse gritted sand flone, whose fracture presents large
rounded grains of quartz connected by means of a cement
lefs pure.

Fig. 7. represents the foundation of the hearth, and a full
view of the manner in which the falfte bottom is con-
structed.

A A, the bottom flones of the hearth. B, a stratum of
bedding fands. C C, passages by which the vapour gen-
rated from the damps is paved off. D D, pillars of brick.
The letters in the horizontal view of the fame figure corre-
spond to similar letters in the dotted elevation.

Fig. 8. A A, horizontal section of the diameter of the
boles; the lining and vacancy for fluffing at M. C, view of
the top of the hearth at L.

Fig. 9. Vertical side section of the hearth and boles,
shewing the tymp and dam-flone, and the tymp and dam-
plates. a, the tymp flone; b, the tymp-plate, which is
wedged firmly to the side walls of the hearth; c, dam-flone,
which occupies the whole breadth at the bottom of the
hearth, excepting about six inches, which, when the furna-
ace is at work, is filled every cull with a strong binding flond.
This flone is furnmounted by an iron plate of a considerable
thicknes, and a peculiar shape, d; and from this it is called
the dam-plate. The top of the dam-flone, or rather the
notch of the dam-plate, is from four to eight inches under
the level of the tuyere hole. The space under the tymp
plate, for four or six inches down, is rammed every cull full
of strong loamy earth, and sometimes even with fine clay.
This is called the tymp flopping.

The square of the base of this furnace is 38 feet. The
extreme height, from the falfte bottom to the top of the
crater, measures 55 feet.
from 8 to 10 per cent. of water, and coarser gritted flones from 10 to 12. Taking the average 10 per cent., then in
a furnace of equal dimensions to the drawing in Plate II.
fig. 6, the sand-foie of which will weigh upwards of 1200	tons, there will be introduced 200 tons of moisture. This
quantity is always considerably increased by the portion of
water necessary to reduce the lime to mortar, and frequently
augmented by the moist state of the weather during
building.

The evaporation of this immense body of water is the
source of all the mischief which takes place in the shell of the
bluff furnace; nor is it much to be wondered at, where
every precaution is not used to bring the heat forward in
the most gradual manner, preserving the cleanliness of the
vents, and allowing the moisture intenfibly to pass away.

In situations where bricks can be obtained, the moisture
of the sand-foie is avoided, but the great extra quantity of
lime, which is necessary to build with bricks, introduces
through the medium of the mortar an almost equal quantity
of water, as with sand-foie. This has been obviated in part
by using soft clay in the interior of the walls; but as
clay seldom binds to any great extent, the general puff of
the furnace must be trusted to good binders from
without.

In the construction of all bluff furnaces, a complete
vantage ought to be preferred by means of narrow flues, or
passages proceeding horizontally from the middle of the solid
shell, or within two feet and a half of the interior to the
outside. These ought to be connected with a circular chan-
nel, or gutter, of the same dimensions, proceeding round the
circumference of the furnace; so that if any one vent
were choked in the general expansion, the moisture con-
ducted by it might easily vent itself among the other open-
ings. The vents cannot be too numerous; and as they
f seldom exceed four inches square, the building cannot be
materially weakened by them.

In addition to the horizontal channel of communication,
some builders carry up in the main building of the furnace
four, fix, or even eight perpendicular flues, which commu-
nicate with it and the openings that proceed horizontally to
meet the external air. See Plate VIII. figs. 1, 2, 3, 4.

Either of these methods may be considered as just precau-
tions to infure the existence of the furnace, but adopting
them in the fullest and most complete manner, is not always
accompanied with similar success. If circumstances formerly
noticed concur in occasioning an extra degree of expansion,
the pressure of the lining against the common building of the
furnace often deranges the systematic order of the vents,
pushing the bricks into contact with each other, and
mothers for a little while, though to gain more fatal elastic ef-
fects, the increasing volume of the vapour.

After such a diversity of opinion upon a subject of such
importance, wherein each respective class of votaries
can boast of complete success from its peculiar plan, it may
difficult to point out one more generally attended with
good effects than another. The following, however, may
defere the serious consideration of the manufacturer of
pig-iron.

Of whatever materials the furnace is constructed, let them
pollute no more moisture than is sufficient for their proper
building. The thickness of the common building not to exceed,
at its greatest breadth, 25, or 7 feet. In the middle of
the wall, a space of four or fix inches ought to be left
clear all the way to the furnace top. Into this vacuity should
be introduced small fragments of sand-foie, about the size of
an egg and under. When the expansion, proceeding from the
fire building of the interior, causes the bricks immediately in
contact to push outwards, the masses of sand-foie are im-
mEDIATELY reduced to size, and filling the interfaces occasion-
ated by their angular shape, actually occupy much less
room; and now present to the flame or fire, should it be in-
clined to penetrate so far, a solid vertical stratum of sand,
after having secured the expansion of the furnace to the ex-
tent of some inches. The effects of the pressure are thus
dverted from the shell of the building, and lost in the pul-
verization of the fragments of sand-foie.

The advantages following from this plan may be nearly
doubled, by using a double lining of fire bricks, as represen-
ted in Plate VIII. fig. 3, betwixt each of which, and the
common building, a similar vacancy should be left; but
filled with sharp sand, containing no more moisture than serves
to compact it into a firm body. As this moisture becomes
gradually expelled in the flow heating or annealing of the
furnace, the sand occupies less bulk, or, which is the same
in effect, is then susceptible of a greater degree of compres-
sion when the general expansion of the furnace comes on. It
is evident that the force is here also diverted against the sand
in place of acting immediately, with a tendency to enlarge
the circumference of the building.

Over and above all these precautions, the annealing or
drying of the furnace in a progressive and regular manner
ought to be carefully attended to and continued for two or
three months at least. Many are blown much earlier, from
an anxiety to get to work, and make returns for the great
capital necessarily expended in these undertakings.

The same variety of opinions exists in the trade relative to
the determined figure and dimensions of the bluff furnace, as
subsequently, with regard to the belt mode of building. Its height
has, at different times, varied from 20 to 70 feet; and its
diameter, at the bodies, or widdell part, from 8 to 15 feet. It will be easy to trace the source of this
indefinite mode of construction, and the uncertainty which
must necessarily pervade operations of so much risk and
importance.

At the time when charcoal of wood was the common, and
indeed, the only fuel used in the bluff furnace, the volume
and extent of the bluff were proportioned to the very imper-
fect state of the blowing machinery. Long experience had
taught the manufacturer what were the proper size and
dimensions of his furnace. Many of them were from 12 to
18 feet high, and some of them, where a good water wheel
bluff existed, reached as far as 28 feet in height.

When pinecoal was introduced into the bluff furnace, in the
state of coke, to produce similar effects to the charcoal of
wood, it was soon found, that in furnaces of equal capacity
and height the same effects could not be produced. The
ore required to remain in contact with the ignited fuel for a
longer space of time, in order, unquestionably, to produce, by
attended contact, what was deficient in temperature, for
the saturation of the ore with coaly matter. This would
immediately suggest an increase of the height of the bluff-
furnace; and if beneficial effects once resulted from a step of
this nature, it became a matter of difficulty to say where
the progress of height would stop.

Hence, in a few years, arose furnaces of 50, 50, and
70 feet in height. Of the last dimensions, one was erected
in Wales. The size of the artificial crater was such, that
the strength of the bluff was scarcely sufficient to keep the
existence of flame visible at the furnace top. After in vain
endeavouring to ignite the immense body of materials con-
tained in its vault capacity, the height of the furnace was re-
duced 90 feet by cutting a hole in its side, narrowing the
mouth, and throwing in the materials at the height of 40,
in place of 70, feet from the furnace bottom. This was at-
tended.
tended with success, and the operations of the furnace proceeded with their usual facility.

After the application of steam-engines to raise and condense air, the quantity and strength of the blast became more a mechanical property in the hands of the manufacturer. It was soon discovered that an increased volume of air, by exciting a much higher temperature throughout the furnace, constituted the immediate action of those affinities, which the tall furnace accomplished by a long attenuated contact, and that iron equally carbonated and fitted for the purpose of melting, could be produced by 30 hours contact, as in four days.

The consequence of these gradual discoveries was a general predilection in favour of small furnaces, and at present the bias of the manufacturer leans inclined to this extreme. Where the maximum will be found it is difficult to conjecture, for the ground which the manufacturer now occupies is materially altered from what it was when working with coke was first introduced. The perfection to which the blowing machine has attained, forms a striking contrast to the feeble and diminished effects of the bellows in the infancy of the trade. So far as the necessary affinity is increased, and more instantaneous produced in high temperatures, than in those inferior, the manufacturer is differently circumstanced, and commands an extent of means unknown to him in former times. That this superiority will produce equivalent effects in the modification of the blast-furnace, requires but little demonstration. Two facts illustrative of this may, however, be mentioned. Cast-steel has of late years been formed directly from bar-iron, by a process which only requires an hour or two to complete, and with small quantities of matter the same may be performed in a few minutes. This is effected by presenting the carbonaceous matter to the iron at a melting temperature. In the usual mode of cementation, blistered steel, by a more attenuated contact and inferior temperature, requires six or seven days to complete, what is here produced in two hours. The difference of temperature in the two operations is equal to 62° or 70° of Wedgewood. The first operation will be considerably shortened, if the cast steel is required to hold much carbon; but if this requisite is necessary in the blistered steel, the length of the cementation must necessarily be protracted. Again, a piece of malleable iron may, by presenting it with a proper dose of carbon, at a high temperature, be converted, in a few minutes, into a mass of the richest carbonated cast-iron, which, in a temperature inferior, would have required several months.

The same facts will apply, in part, to the manufacture of pig-iron in the blast-furnace; but an unanimity of opinion and action on this subject is precluded, as well by the prejudices of individuals, as from circumstances arising out of the nature of the materials operated upon in different places.

A furnace has lately been tried at Muirkirk in Scotland, only eight feet diameter across the boxes, in place of its former dimensions, which were ten feet, and 40 feet high. It was soon found, that with the same volume of blast which was formerly applied to the ten feet furnaces, very inferior effects were now produced. The combustion apparently was carried to too great an extent, and the materials, owing to this circumstance, entered into fusion before the iron had acquired a sufficient dose of the coal. Another great evil which resulted from this diminution of diameter, was a friction, or retardation of the descent of the materials upon the lining of the furnace. This evil was increased and the materials made more boyant, by the usual volume of air elevating itself in a cove not much more than half its former area. The consequences were, that the whole mixture of coke, iron-ore, and limestone, would have frequently hung for an hour together, or until the blast had cut all the hearth and boshe clear of materials, a slip would have then ensued, and brought with it a large proportion of newly introduced matter. The introduction of this into the fusing point before being properly heated, and long before any affinity had been established between the particles of metal and the carbon of the furnace, invariably changed the quality of the metal, and caused frequent and sudden alterations from grey to white iron.

Upon the subject of height and width of blast furnaces, it may be finally remarked, that the average height in Britain may be taken at forty feet from the upper surface of the hearth bottom, eleven feet diameter at the greatest width or boshe, and three feet and a half for the diameter of the tunnel-head, or furnace-mouth.

If the proportions of height and diameter in the dimensions of the blast-furnace have given rise to a multiplicity of opinions, the internal structure and shape of the cavity have been no less an amble field for speculation and prejudice. At one time this was conceived to be essential to the success of iron-making, that any particular furnace that had made a fortunate run of quantity and quality, was copied with the greatest accuracy of design. This fortunate iron-founder ingeniously attributed to the mechanism of his contrivance the rich and superior harvest he had reaped in metal, and, or fancied he saw, in the curvature of a line, or in the inclination of a slope, the talisman of his good fortune. By prolonging the one, or depressing the other, he immediately inferred that still superior effects would be produced, and that by obtaining the perfection of art in the mere fabrication of structure, every thing that was great and powerful would ensue. This rage continued for many years, and gave rise to an endless variety of shapes, many of which, in their eventual success, had only the merit of originality to boast.

In the establishment of this important and national manufacture, the great fluctuation of opinion as to structure seems to have been the prelude to a subfusc into approved forms, founded upon general principles; and though we may now smile at the indiscernible forms which our predecessors, or even contemporaries, annexed to the blast-furnace, yet these alterations of shape and structure lay the strongest claim to our respect and gratitude. The path is now opened, and the ground already beat; from the labours of those who have already gone before us, result the happiest effects; we proceed towards our object, free from the interruption which inexperience always entails; and we may now, by the direct application of principle, perfect with facility what may still be deemed delirant in this important branch.

The varieties of shape which custom and experiment, from time to time, had annexed to the blast-furnace, may be classified under four distinct kinds. Plate VII. and VIII. The following description, characterizing the resulting properties and dimensions in the form of each class, will be necessary for comprehending the subject thoroughly.

Plate VII. fig. 1. is the vertical section of the blast-furnace cut across the top of the boxes; the internal shape entirely conical; the external figure a quadrangular pyramid. The construction of this furnace is truly singular; and from this alone great advantages were expected to result. The originality of the principle consists in the double figure, or throat. One immediately above the hearth, not represented in this figure, but similar to the square in Plate IX. fig. 1. B; and another half way up the cone, four feet in diameter; see A.
Blast.

B, the top of the boles, 12 feet in diameter.
C, an inferior diameter of 10 feet, previous to the formation of the throat at A.
D, the top of the second row of boles, of the same diameter as B.
E, the furnace mouth, or termination of the second cone, four feet diameter, and proportioned to A.
F, funnel top for carrying off the flame occasioned by the blast, so as not to interfere with the workmen in filling the furnace.

The dimensions, as to height, are as follow:

From B to C
C to A
A to D
D to E
Height of the hearth, and first row of boles, not shown in the figure, but being the same
Height of the bottom flones, packing, and tafle bottoms,

Total height of this furnace from the foundation 50 feet.
G, fire brick lining.
h, space left for packing.
I, the common building either of sand-flone, or of bricks.

Fig. 1. plan and section of the same furnace taken across the boles at B.

AAAA, square of the common building 29 feet upon the side, bound by EEEEEBB, eight cast-iron binders; the number or heat of these requisite, being proportioned, both in strength and dimensions, to the height of the furnace. In common, a full binder is applied every five feet in the height.
The concentric circles represent the various diameters of the interior of the furnace, and are connected each by dotted lines, with their respective places in the elevation.
The reasoning which we believe led to the construction of this furnace, proceeded from a firm belief that the boles and throat, or square of a blast-furnace were of the greatest importance on two accounts. First, because they supported the weight of the materials; and secondly, because they concentrated the heat. These acting conjointly, permitted the least possible quantity of materials to pass, till they dropt away in a state of demifions, or complete separation. In furnaces, however, the cones of which were 20 feet high and upwards, this was conceived impossible to take place for any length of time, to any considerable extent. The height and gravitating pressure of the materials were more than sufficient to counteract the most favourable construction of the boles; and as this could not admit of diminution, the suspension of the materials, and the concentration of the heat must be effected by some other means. This, at one time, was believed to have been completely effected by the scheme of an additional square, and an extra jet of boles; and there is little doubt but that, by converting perpendicular to lateral preasure, the suspension of the materials was reduced at least to one half of its former intensity.

It was not doubted but that the procefs of smelting and separation would commence, in part, at A; that what escaped fusion and separation in that quarter, would be easily resolved below; and that the procefs of combustion intensify at work in two different places at once, would greatly facilitate the general reduction, and add greatly to the produce in iron of the furnace. These fanguine expectations were unfortunately never realized, the solitary instance of one furnace only being constructed in defence of this theory, and that only for a very temporary endurance, is the best proof of the utterity of the plan.

Fig. 2. is the elevated section of a blast-furnace, of which several were built, and from which it was at one time conceived that the greatest advantages were derived. The numerous minute gradations of diameter exhibited in the construction of this furnace, were at one time held in high estimation by many iron-makers; and a plan of the present furnace circulated from the domains of the lucky projectors, with as much care and conscientiousness of rich acquisition, as an antiquary would remove from Herculaneum or Egypt, the precious remains of antiquated obtuseness.

It will be extremely easy to trace to its source this particular bias to form, so universally believed in at one time, but now confided to that oblivion which experience has taught us it deserved at a much earlier period.

It often happens, that when repairing or relining a blast-furnace, the manufacturer avails himself of the time thus obtained, to overhaul and repair his engine and blowing machine. The former movements of the machinery may have discovered to him many errors both in movement and construction, which the constant requisite motion rendered impracticable for him sooner to remove. In this way, considerable improvements on the engine and blowing apparatus are frequently made; and when again in motion, may, by increasing the length and number of the strokes in a given time, or by conferring a higher additional working power on the beam plos, increase at the same time both the volume and density of the blast. If the produce of the furnace is increased, which is highly probable will be the case, then the superior effects are attributed to a few important circles and lines added to the interior of the cone, the acuteneb and proportion of which do not survive the blowing of the furnace three days.

In like manner, if a works entirely new, commence operations with a greater advantage of blowing power, and with something original in the shape of the furnace, the consequent effects of the former are indubitably attributed to the fortunate construction of the latter, and the grand essential blast is entirely overlooked, and its next important associates coal and iron-flone.

The dimensions of the present furnace are as follow:

<table>
<thead>
<tr>
<th>Diameter of the cone</th>
<th>A</th>
<th>3 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>ditto at B</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ditto at C</td>
<td></td>
<td>8 1/2</td>
</tr>
<tr>
<td>ditto at D</td>
<td></td>
<td>9 1/2</td>
</tr>
<tr>
<td>ditto at E</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>ditto at F</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>ditto at G</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

From G to F, the distance in height measures 1 foot.

Increase of diameter - 1 foot
Diminution of diameter - 1 foot
Diminution of diameter - 6 inches
Diminution of diameter - 1 foot
Diminution of diameter - 1 foot
Diminution of diameter - 4 1/2
Diminution of diameter - 1

Height of the hearth and boles not represented in the plate - 13
Total height of the cavity of the furnace or place occupied by the materials - 40 feet.
The former descriptions will suffice and apply to this plate.
BLAST.

Plate, with equal propriety as to the former, regarding the lining, packing, common building, &c.

Fig. 4 is a plan and section of the same furnace at F in the elevation.

The inner circles represent the various diameters of the interior of the cone, the letters in each corresponding. The two external circles describe the packing and lining; and the circle N exhibits the circumference of the common building of the furnace, which, at this particular section, is 26 feet in diameter.

Plate VIII. fig. 1, is the elevation of the interior of a furnace of a plain construction, and at one time very prevalent at founderies. This fashion was deemed to polish its peculiar merits, and still maintains its form unaltered at some ironworks where the regular tapering cone is not yet admitted. Its inferiority, as to height, is amply made up by an enlarged capacity arising from its diameter.

Diameter at the mouth of the cone A - 3 feet
ditto at B - 11

ditto at the boffles C - 12

Height from C to B - - - 12 feet

from B to A - - - 14

Height of the boffles and hearth not represented in the figure - - - 11

Total height of that part of the furnace occupied by the materials - 37 feet

FF, represents a view of the vertical method of carrying off the moisture and stem from the mass of building, by means of vents. The number of upright flues vary from four to eight, and have regular communications by means of horizontal openings with the external air, GG. They are generally carried up parallel to the lining, and incline with the general diminution of the cone. The former, or vertical openings, are six inches square, and the horizontal communications four inches square.

Fig. 2. is a plan and section of fig. 1, in which are represented the lining, the vacancy for packing, and eight vents or openings corresponding to those in the elevation. The letters in each figure correspond, and the two dotted circles are meant to show, that occasionally all the vents communicate with each other by means of a horizontal gutter or channel, carried quite round the building. This precaution is used left any of the tubes were to fill up and choke the free circulation of the vapour, that its appropriate quantity may get easily discharged amongst the other openings.

Fig. 3. is an elevated section of a furnace, the interior shape of which has now almost become universal. The regular and uniform deflect of the materials which follows, as a consequence of the gradual enlargement of the cone, fully justifies the general partiality in favour of this shape.

Diameter at the mouth, or opening A - 3 feet

Diameter at the top of the boffles B - 10

The height from B to A - - 31 1/2

Height of the hearth and boffles not seen in the plate - 11 1/2

Total height of this furnace - 43 feet.

This form of furnace is not only constructed with a double lining of fire bricks CCCC, and two openings for introducing land for packing bbb, but has also an opening DD, from top to bottom, about the centre of the common building. From this, in all directions, proceed small vents, which communicate at a short distance with the open air, as may be seen along the sides of the building.

Fig. 4. is a plan and section of fig. 3, cut across at B.

B, diameter over at the boffles 10 feet.

CCCC, the two circles of fire brick-lining, as seen in the elevation.

bbbb, spaces for receiving packing.

DD, circular vent, or general gutter, from which ramify the horizontal openings.

These are repeated at intervals of four feet in the height, as may be seen in the elevation. In building, DD is filled with fragments of soft sand-flame, which are easily reduced in the expansion of the furnace, and tend, by diverting its real pretence, to preserve the body of the building entire.

A similar want of unanimity of opinion subsists among iron-makers, relative to the general construction of the boffles, their particular height, and most beneficial range. Some contend for flat, others for boffles more vertical, while others again conceive the exertions of those equally faced full, who adopt the mean of the two extremes. At different places, and to every possible range, have been attributed the most important consequences in the subsequent process.

Plate IX. fig. 1, represents boffles of the deepest construction.

Diameter at A - - 10 feet

Perpendicular height from B to A - 8

Square at B - - 2 1/2

The opinion relative to this form, is, that at first blowing, the boffles are promotive of a very proper degree of expansion of the materials; but as the pressure of the deficient bears in every direction upon the under or bottom part next the square at B, it becomes increased so much, that the weight of the incumbent materials early begins to press too much towards the bottom of the hearth, counteract the regular precipitation which should take place, and impede the ascent and full effect of the blast.

Fig. 4. is a section of boffles approaching to, or indeed may be considered as the opposite extreme. Here the reverse of the fact attributable to No. 1 takes place. The pressure of the descending material is equally distributed over the very flat inclination of the boffles, and there is no more weight deemed to be on the square at A than is equal to a full column of the materials of similar dimensions, left by the direct tendency which the strength of the blast to keep them in a state of partial buoyancy. To counteract these advantages in part, very serious defects are here also imputed. If circumstances unite to increase the tear and wear at A in any uncommon ratio, either by scouring, or from a deficiency in the quality of the stone or bricks, the whole of the upper part of the hearth at BB is immediately exposed, and, though composed of a superior quality of sand, will soon follow the direction of the descending current. A pressure of materials then takes place, equal to the whole of the increased space, while the effect of the blast to bear them up is considerably diminished by the enlargement of the original diameter. It will be seen from the plate that the weakens of flat boffles at the top is ill calculated to withstand any accumulating pressure, and that by confining their part of the procés to the hearth, the latter must soon, by a similar widening, be entirely destroyed.

Those who wish to flee clear of extremes, or profit by the more adventurous spirit of their neighbours, more generally adopt a mode of boffling that occupies the mean of the two former extremes. This is represented by fig. 3.

Diameter of the boffles at A - - 10 feet

Perpendicular height from B to A - 5

Diameter of the square B - - 2 1/2

In general, the boffles of blast furnaces are made of the same kind of stone with the hearth, but of late fire bricks have been introduced with a considerable indication of advantage and
and permanency. When bricks are used, it is found of utility to make the whole part of the building solid, back as far as the external figure of the hearth, so that if the boles fail in part as to displace one layer of bricks, another fur-
face, equally fresh and entire as the former, presents itself to the action of the fire.

Fig. 2. Ground plan of the top of the boles of fig. 1. AA and BB correspond to the same letters in the elevation. The dotted square C describes the form and dimensions of that part of the hearth immediately above the tuyere, as seen in the elevation CC. The large dotted square DD is the external size of the hearth, as seen also in the elevation DD.

Fig. 4. While we prosecute the detail and history of the con-
struction of the blast furnace, the fame diversity of plans formerly noticed comes under review, in every department of the erection. The importance of the hearth is admitted by every clafs of reasoners upon this subject; and to devise a form better calculated for melting than another, has been an object of general concern with the manufacturer. Much as may be deemed to depend upon its form and construction, infinitely more benefit is derived from a proper quality of stone, to fulfill for a given length of time the powerful effects of a continued and unremitting blast. To both of these impor-
tant defects much of the manufacturer's attention has been from time to time directed.

The first singularity that strikes us forcibly in the figure of the hearth, is, that in place of being circular, like the upper parts of the furnace, it is constructed of a square funnel-form, with angles as acute as represented in Plate IX. fig. 1. This narrowing form is continued on three sides of the square to the bottom of the hearth, where it generally measures from 22 inches to 24 inches. The top of the hearth, at BB, fig. 1. and 4. or as it is commonly called the square, is never less than 30 inches, nor more than 33. The height of the hearth from E to B, Plate IX. fig. 1. 2. and 3. While some approve, more are ready to con-
demn a measure, which has for its object the enlargement of a space before blowing, which too speedily becomes to afterwards. There cannot, however, be any objection to the circular, in place of the square form, unless a little additional workmanship is indulged as such. The matter rests with experience, accompanied by accurate observation, to prove the fanguine hopes of the projector, or falsify the prophetic forebodings of those who now condemn the measure. The amount of our progress hitherto, in the making of pig-iron, is ascertained with certainty; to assign limits to its ultimate bounds would be presumption. Of one fact, however, we may rest assured, that the perfection of the blast engine, and the consequent command of blast, has alone done more for the manufacture of this article, than all those nice shades of distinction as to furnace taken collectively, which relieve each other in a succeffive train of minute gradation from one extreme to the other; to all, or to most of which, the most wonderful effects have been from time to time ascribed.

One subject of confidrable importance still remains to be discufed, relative to the construction of the blast furnace; namely, the absolute and relative heights of the tuyeres, the dam-flone, and tymy.

On the subject of tuyeres, the general opinion is, that the nearer the cinder the blast is introduced, the greater is the effect as to the absolute quantity of reduction. But this may be productive of consequences more than sufficient to counterbalance the doubtful advantage of accelerated reduction, either by blowing the cinder off the surface of the iron, and de-carbonizing it, or by the cinder rushing back through the blow-pipe at any stop of the blowing machine, and destroying the leather bag which connects the blow-pipe with the main laying pipes. This never happens
BLAST.

happens but a considerable portion of time is sacrificed, besides the expence of the bag.

In common, the surface of the tuyere plate is laid eight inches above the cinder, or, which is the same thing, above the level of the dam-flone. Some blow at a distance of four inches, others at six and eight, and some again as high as twelve and fourteen inches. However, under some circumstances, the height of the tuyere is determined by the nature of the materials. In these cases, if the tuyere is only raised one inch above its proper height, the bottom of the furnace jumps up immediately, and will invariably rise in the same progressive manner in which the tuyere is heightened.

Plate X. fig. 1. represents the relative proportions of height between the dam, tuyere, and tymph, in ordinary cases.

G, the dam, or notch of the dam plate, 17 inches above the level of the bottom at H.

I, the centre of the tuyere 25/4 inches from the surface of the bottom, and 9 1/2 inches above the level of the dam.

K, the bottom of the tymph plate, 25 inches from the bottom of the furnace, and 6 inches above the level of the dam.

At iron-works, where different opinions exist as to the proper or working height of the dam, very different relative heights ensue, regarding the tymph and tuyere. The former should always regulate the other two. The height of it is seldom used less than 16 inches, nor more than 28 above the bottom.

Considerable advantages result from placing the tuyere, as to its horizontal position, at a judicious distance from the front or back wall. This is, as in the case of height often regulated by the nature of the materials. If the furnace, owing to this circumstance, tends to work cold and languid behind, with a propensity to lump at the back wall, the blow-pipe ought to be directed as near to the extremity of the hearth backwards as is possible to get in the tuyere iron; Fig. 4. Plate X. letter a; but where the operations of the furnace proceed with ease and facility, the centre of the tuyere should more generally approach the centre of the hearth, as at b.

Of late years a new mode of blowing has been introduced, which, from its great prevalence and good effects, seems to bid fair to come into general use. Furnaces till lately were only erected with one arch, or tuyere fide, and the blait or column of air introduced by means of one blow-pipe; now most of the new furnaces are built with double tuyeres, with two fets of main conducting pipes, and the blait introduced by means of two pipes in place of one.

The general effects and supposed properties of this mode of blowing are attended to under the article blast.

In the mean time, the proper height and distance of the tuyeres, and their relative position to each other, have been subject to endless disputation. Fig. 4. Plate X. a and b show how, in common cases, the tuyeres are placed to each other in their horizontal range: a is placed with its centre three inches from the extremity or back wall of the furnace, and b at the distance of nine inches from its centre. That there should be a difference of distance in their horizontal position none are inclined to dispute; but that this should take place in their vertical situation, is so contended, while others insist that the difference ought never to be less than four inches. Fig. 6. Plate IX. cc.

Some less fastidious appear, and with many evidences of sound reasoning on their side, that if the blast is introduced into the furnace, and at a proper distance, to keep the back wall clear, those nice distinctions as to inches go for nothing, in a region where an instantaneous increase of volume must destroy all repulsion or mechanical contact. This philosophical reason is flatly denied, and the contrary minutely and gravely asserted, that there were two pipes placed every way immediately opposite to each other, the action of the opposite columns would retard the velocity of the air, and diminish the real elevated quantity in the furnace, by locking up in mutual opposition a portion of their respective quantities in the laying pipes. There might be some foundation for this conjecture, were the respective nozzles or blow-pipes brought into actual contact, or inserted into each other; but to those who consider, that in molf furnaces there is never less than four feet of distance between nozzle and nozzle, and the molten of the intervening space filled with a column of semifluid materials, ignited to the highest pitch of whiteness, this supposition will appear to roll upon very unsatisfactory grounds.

A less scrupulous class of observers and reasoners upon this subject even go the length to assert, that the tuyeres ought to be put in direct opposition, and that this, so far from being detrimental, would be found to possess unequalled advantages. This it is laid would result from a certain degree of coolness which the extremity of each column of air confers upon its opposite tuyere iron, and prevent the flame from heating and burning. To whatever cause it is attributable, the fact stands in many instances, unquestioned, that not half the tuyeres are lost or burnt out, with the double blast, that was formerly destroyed, where the single blast was in use.

Fig. 7. Plate X. represents a tuyere iron, 16 inches wide, and 12 inches high at the wide end, 18 inches long and narrowing at the other end to 4 inches wide, and 4/5 inches in height. Fig. 6. is a plan of the under surface of the tuyere iron. Fig. 5. represents the size and dimensions of the tuyere plate, which when bedded receives upon its surface the tuyere iron, Fig. 7. This plate is first laid upon a bed of fire clay, with its narrow end towards the hearth, and inclined to rise a little. The tuyere is then introduced upon its surface, height and distance being attended to in the disposition of the plate, and the space between its surface, and the sand-flone of the furnace, rammed very perfectly with balls of good fire-clay mixed with small fragments of fire bricks. When about to blow, the noke or inner end of the tuyere is covered with a very plastic clay, to prevent it from heating and burning away. This is always carefully attended to, and the blast put off at any time to replace it. Should it be neglected at any time, the iron would inflame with such rapidity, that an opening would be instantly made, by which the cokes and ignited matter of the furnace would be recalled with the greatest violence imaginable.

Fig. 2. Plate XIX. The dam-flone. This is actually the dam, or barrier, which prevents the fluid contents of the furnace from advancing, and making their escape into the sand of the casting house. It is generally made from the same flone as the hearth, but is found still more difficult to sand for and length of time the action of the fluid iron, than the hearth to resist the ravages of the blast.

Fig. 3. dam plate. This is laid against the dam flone with a bed of fire clay interposing, and closes the front of the furnace. Its form is double, so that by turning it serves the purpose twice. It often fails, owing to the constant current of lava passing over the curvature a, and deepening it, till the iron flows over along with the cinder.

Fig. 4. the tymph plate. This embraces the under end of the tymph flone, and the fides of the hearth for three feet up. The thickness at bottom, called the heel, or cod, is preferred from the action of the fire by a strong tappin of clay. This
This is replaced at least every cast, and prevents the flame and heated materials of the furnace from being blown forward.

Plate IX. fig. A, is a ground plan of the arch pillars, hearths, tuyeres, and vents of a blast furnace.

A, the hearth, or particular spot where the fluid metal is collected.

D, the dam-flone.

e, the fall, or opening, by which the metal is discharged.

After the cast it is filled with sand, which soon hardens and presents a very close texture to the fluid metal within. At the following cast it is cut carefully down, till the bar penetrates to the quick. A circular incision is then made, and the metal flows out of the orifice in a connected round stream, into the runner or channel made in the sand.

'd d d', four vents or openings which communicate with the false bottoms. Plate I. fig. 2. These serve to convey the damp from the furnace bottom, and by being run out into the external air, two in the front of the hearth, and one at each tuyere, indicate by their temperature, and the quantity of flashes or vapour which they emit, the real state of the bottom below.

D D, the two pillars which support the front arch; they, at the same time, serve as abutments to one leg of each of the tuyere arches. The arch at the front is 15 feet wide and 15 feet high, and inclines to the centre of the furnace, in the same manner as the side walls of the pillars approach.

E, main or back pillar built entirely solid.

FF, vent holes six inches square, carried up from the foundation, and brought forward to meet the open air every four or five feet.

G G G G G, tops of the pillars covered with cast iron plates, for receiving three large cast iron lintels, 10 feet long, and 10 inches square. These serve to give solidity to the arch, and support the lining and boles of the furnace. Fig. 8, 9, different forms of tuyere pipes.

BLAST. Furnace.—History of its Origin and Progress.

In detailing the progressive history of the blast furnaces, it is necessary to premise, that in this country it has undergone a revolution, of which we meet with no similar influence in other countries.

The most natural and abundant fuel which presents itself to mankind in their progress toward civilization, is that furnished by the numerous and extensive forests, which generally occupy the surface of a wide and uncultivated country. These, in the history of all nations, have been early appointed to domestic uses, and to the comfort of individuals. As a country became more populous, and the spirit of civilization increased, other advantages resulted from the general use of wood as fuel. The amelioration of climate, and the clearing of large tracts of land, making it subservient to the purposes of agriculture, were not the smallest benefits thus derived. As the progress of knowledge began to deviate and establish regular manufactories, to supply the wants of the thriving community, the same sources of combination were opened to the manufacturer and the artisan. These, as they became facieous, were only preludies to other establishments more extensive, more lucrative, and entailing more difficult to supply. Among others the smelting of metals was no doubt of early origin, and equally dependent upon the woodland countries, in the immediate neighbourhood of the ores. In this class we can trace no metallurgical operation fo hostile to the existence of wood, as an extensive manufacture of iron. If this manufacture, owing to the great and unexampled prosperity of the country, in place of remaining stationary, or exhibiting symptoms of decline, arising from a want of consumption of the article, has increased in capital, in extent, and riches beyond all precedent, wood, the bale of the manipulation itself, depending only upon a stock rapidly declining, the existence of which was frequently incompatible with the views and interests of the landed proprietors, must soon have been annihilated, and the art of making iron lost to the community.

In this singular situation was Great Britain placed from the reign of Charles II. to the middle of the last century. The increasing manufactures, commerce and general prosperity of the country called for an additional supply of articles fabricated from iron, while wood, the foundation of the whole art, was rapidly declining in point of quantity, without the least diminution of profit; and even being renewed. Pit coal had been long before the latter period suggested as a substitute, but prejudice, interred views of established capitalists, and above all, a want of command of mechanical power, had prevented any successful operation from being established in this new department of iron making. No sooner, however, were these barriers to improvement broken through, and a change of fuel in the blast furnace found to be attended with profitable effects, than the languishing state of the trade began to revive, and improvements succeeded each other, with a facility new and astonishing. In fifty years the revolution was complete whether the consideration regards the increase of the manufacture, the general use of pit coal in the blast furnace, or the almost total annihilation of the charcoal mode of making iron.

It is uncertain at what period the manufacture of iron commenced in Britain. It is probable, that the working of the tin mines of Cornwall, by the Phoenicians, would introduce into the country a class of men skilled in all that then known metallic ores, capable of appreciating their true value, by converting the riches of an unexplored country, either to their own immediate necessities, or to the conveniences of the skilful inhabitants. The invasion of England by the Danes, and their consequent establishment, would most likely add to the former stock of knowledge, in the art of mining and fusing iron ores. Whatever truth there may be in this conjecture, the fact stands unquestioned, that in several counties in England large heaps of iron ore are found with an accumulation of soil sufficient to bear large trees. These have been from time immemorial called "Danes cinders." So early as 1620, Dudley remarks, that large oaks were then found in a state of decay upon the tops of some of these hills of iron. It is not, however, probable, that these cinders were the product of the blast furnace. At a period remote as that, wherein these heaps of iron ore must have been accumulated, the labours of the iron maker were chiefly directed to the fabrication of small portions of malleable iron in "black blast and bloomeries." The art of moulding and casting in iron was either totally unknown, or so very rude, as to excite no interdict in favour of profecting this fine branch of art. If pig or cast iron was at all formed, it was merely of the most unfeatural nature, for being speedily converted into malleable iron. It was not till long afterwards, when improvements had taken place in the rude machinery of the times, as a division of labour from the productive of many advantages, that different furnaces existed: one for the making of pig iron, and another for the conversion of it into malleable iron. This first gave rise to the blast furnace, which, properly speaking, was an improvement resulting from the knowledge of the advantages derived from a division of labour. After the appropriation of the blast furnace to the exclusive manufacture of pig iron, the manufacturer would soon discover, that the products of
This period of prejudice, so unfavourable to innovation in the iron business, was followed by one more general and more calamitous for the nation: amidst the distraction occasioned by civil war, neither innovation nor improvement could be expected. Patents, however, were granted to some during the common-wealth, for the exclusive manufacture in the new way, in one of which, it was at the time believed, that Cromwell was a partner: these partly shared the same fate with the first investor, and none succeeded in establishing a manufactory either of extent or certainty. In 1664, we find Dudley applying for his last patent, and setting forth, that at one time he was capable of producing seven tons of coke pig-iron weekly, with an improved furnace 27 feet square, and bellows, which one man could work for an hour without being much tired.

It was not, till impelled by necessity, arising from the rapid decline of the annual growth of timber, that pit-coal became an object of universal estimation. When improvements on machinery had attained a pitch of certainty, and experience had taught the mechanic the manifold advantages of the steam engine; the adventurous manufacturer found he possessed an extent of means to which he was formerly a stranger. Small furnaces, supplied with air from leatnorn bellows, blown by oxen, horfe, or human labour, became exploded, and an increase of size took place, together with an increafe of the column of blast necessary to excite comhition.

At this eventful era in the history of the blast furnace, when the ameliorating hand of agriculture was progressively sweeping before it, that remained of the once impenetrable tracts of woodland dedicated to the supply of the blast furnace; when the general improvement in machinery, and the introduction of the steam engine threatened to give new life and impulfe to manufactures in general, the iron business seemed dwindling into insignificance and contempt. The demand of the country increafed for the manufactured article, particularly bar-iron, while every year faw a gradual but steady diminution of the annual quantity. Recourse to foreign markets was had for a supply of that article, of which this country once was the greatest exporter, and the immense annual importations from Russia and Sweden may date their origin from that period. The flourishing and extensive detail of Dudley no longer existed, and the 500 blast furnaces of his day were now diminished to 39 in all; the total amount of whose annual produce was 17,350 tons, or nearly 300 tons to each furnace.

LIST of the Blast Furnaces in England and Wales immediately before the introduction of pit-coal, as a substitute for the charcoal of wood; the particular counties in which they were situated; the collective quantity of iron manufactured in each county, and the produce of each particular blast furnace.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brecon</td>
<td>Ynmilfedwyn</td>
<td>1</td>
<td>200</td>
<td></td>
<td>650</td>
</tr>
<tr>
<td></td>
<td>Lanithy</td>
<td>1</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glamorgan</td>
<td>Neath</td>
<td>1</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beryllty</td>
<td>1</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 furnaces.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Carried forward 4 1000

Vol. IV.
### BLAST.

<table>
<thead>
<tr>
<th>Counties</th>
<th>Furnaces in each county</th>
<th>Names of the Furnaces</th>
<th>Tons. of pig-iron.</th>
<th>Iron made at each furnace.</th>
<th>Iron made at each county.</th>
<th>Brought forward</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carmarthen</td>
<td>1 Kidwelly</td>
<td>1 Valency</td>
<td>1 Lawton</td>
<td>1 Dodington</td>
<td>3 furnaces</td>
<td>1600</td>
<td>100</td>
</tr>
<tr>
<td>Cheshire</td>
<td>1 Waddoch</td>
<td>1 Ruabone</td>
<td>2 furnaces</td>
<td>1700</td>
<td>1600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denbigh</td>
<td>1 Staveley</td>
<td>1 Foxbrooke</td>
<td>1 Wingworth</td>
<td>1 Wauely</td>
<td>4 furnaces</td>
<td>550</td>
<td></td>
</tr>
<tr>
<td>Gloucester</td>
<td>1 Birdney</td>
<td>1 Elmbridge</td>
<td>1 Flaxley</td>
<td>1 Redbrooke</td>
<td>1 Ditto</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Hereford</td>
<td>1 St. Waynarde</td>
<td>1 Bingwood</td>
<td>1 Bihopwood</td>
<td>3 furnaces</td>
<td>600</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Hampshire</td>
<td>1 New Forest Firne</td>
<td>4 furnaces</td>
<td>6 furnaces</td>
<td>4850</td>
<td>4850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kent</td>
<td>1 Lamard</td>
<td>1 Barchine</td>
<td>1 Hordden</td>
<td>1 Handbeft</td>
<td>4 furnaces</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Monmouth</td>
<td>1 Pontypool</td>
<td>1 Ditto</td>
<td>2 furnaces</td>
<td>900</td>
<td>900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nottingham</td>
<td>1 Kirkby</td>
<td>1 Salop</td>
<td>1 Bowlden</td>
<td>1 Willy</td>
<td>6 furnaces</td>
<td>2100</td>
<td></td>
</tr>
<tr>
<td>Salop</td>
<td>1 Leighten</td>
<td>1 Kimbotted</td>
<td>6 furnaces</td>
<td>2100</td>
<td>2100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Carried forward 37 12150

<table>
<thead>
<tr>
<th>Counties</th>
<th>Furnaces in each county</th>
<th>Names of the Furnaces</th>
<th>Tons. of pig-iron.</th>
<th>Iron made at each furnace.</th>
<th>Iron made at each county.</th>
<th>Brought forward</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stafford</td>
<td>1 Bradley</td>
<td>1 Wincleath</td>
<td>2 furnaces</td>
<td>1000</td>
<td>1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worcestershire</td>
<td>1 Bewdly</td>
<td>1 Hated</td>
<td>2 furnaces</td>
<td>700</td>
<td>700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suffolk</td>
<td>1 Abillaburn</td>
<td>1 Bubley</td>
<td>1 Bread</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warwick</td>
<td>1 Alton</td>
<td>1 Poolibands</td>
<td>2 furnaces</td>
<td>700</td>
<td>700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>York</td>
<td>1 Band, upper</td>
<td>1 Band, lower</td>
<td>1 Burbly</td>
<td>1 Ditto, lower</td>
<td>1 Chappel</td>
<td>700</td>
<td>700</td>
</tr>
</tbody>
</table>

Furnaces 59 17350

Annual average for each furnace 294. 1 1

By this statement it is evident, that the manufacture of pig-iron had diminished during one hundred to one hundred and thirty years preceding, upwards of 50,000 tons annually. Fortunately for the defence of the trade, the application of good going, and what, at that time, would be reckoned powerful, steam engines, about the year 1750, for raising and compresembling air, were introduced at some places where abundance of materials was found without water for turning machinery. The manufacturer now found that his produce could be increased by enlarging the diameter of his steam cylinder, or perfecting the vacuum under the piston; and it was soon discovered, that these increased effects alone were requisite to the formation of pig-iron, in profitable quantity from the coke of pit-coal; nor is it to be wondered that this secret remained for a long time a mystery. The small quantity of air that was formerly requisite to ignite a charcoal furnace, whether from the great inflammability of the fuel, or the smallness of its capacity, was constantly before the eyes of the manufacturer. He had more often felt the effects of over-blowing, than under-blowing his furnace; and it is highly probable, that pit-coal, being deemed every way inferior,
inferior, an unusual timidity would precede any movement that might have for its object the enlargement of the column of air or the increase of its density.

This, however, once done away, there seemed no end to the quantity of air that a coke blast furnace could with propriety receive before any bad consequences ensued. Density, however, was found inimical to quantity, and the same law was at last discovered to hold good regarding pig-coal as with wood, that the softer qualities could be over-blown, while the more dense and compact strata remained undiminished before a heavier blast.

The celebrated foundery of Carron was begun about the year 1760, and as was the custom of the times, the operation of blowing was performed by large bellows moved by means of a water-wheel. Pit-coal was the staple fuel in view, but the scanty supply of air, and its want of density, seldom permitted the produce of the furnace to exceed 10 or 12 tons weekly, and frequently in summer, the quantity was reduced even below this. The company collected immense quantities of charcoal wood, and found their blast much better calculated for the operation of smelting with it, than the unflammable pit-coal obtained in their neighbourhood.

Experience, however, gradually unfolded means of adopting machinery, more calculated to the nature of the coal fuel, more powerful wheels were constructed, the bellows was abandoned, and in their place large iron cylinders were introduced blowing both up and down. A larger column of air of triple or quadruple density was obtained, and effects equivalent to the great improvements followed at the blast furnaces. The same furnaces that formerly yielded 10 and 12 tons weekly, now sometimes produced 42 tons in the same space, and on the average in one year not less than 1,500 tons of metal.

From the period (1750 to 1760) that pit-coal coke was applied as a substitute for wood charcoal in the blast furnace, the iron trade began immediately to revive, and its progress in England and Wales, in a period of 30 years, was truly astonishing. The general use of pit-coal, most unquestionably, occasioned an earlier relinquishment of many of the charcoal works, than would have otherwise been the case, but the collective manufacture had so much increased, as to render this an object of trifling importance.

The following is a correct statement of the annual manufacture of pig-iron in England and Wales in the year 1788:

| Charcoal Blast Furnaces | No. of Furnaces | Tons at each | Total in each | County |
|-------------------------|----------------|-------------|---------------|
| Gloucestershire         | 4              | 650         | 2,600         |
| Monmouthshire           | 3              | 700         | 2,100         |
| Glamorganshire          | 3              | 600         | 1,800         |
| Carmarthenshire         | 1              | 400         | 400           |
| Merioneth               | 1              | 400         | 400           |
| Shropshire              | 3              | 600         | 1,800         |
| Derbyshire              | 1              | 300         | 300           |
| Yorkhire                | 1              | 600         | 600           |
| Wemford                 | 1              | 400         | 400           |
| Cumberland              | 1              | 300         | 300           |
| Lancaithire             | 3              | 700         | 2,100         |
| Saffey                  | 2              | 150         | 300           |

Total of charcoal furnaces 24. 131,000

Average produce from each furnace 545 cwt. qr.
Former average produce 264 4 1

Increased produce per furnace, from the year 1750 to 1788, attributable entirely to the general improvement of machinery, and the introduction of the steam engine, 251 tons, 15 cwt. 2 qr.

About the year 1750 the annual quantity of charcoal pig-iron manufactured in England and Wales amounted to 17,350 tons.
In 1788 the same was 131,000 tons.
Decrease in charcoal iron between 1750 and 1788 4,270.

attributable chiefly to the decrease of wood, but also in part owing to the use of pit-coal as a substitute in the furnaces.

Coke Pig Blast Furnaces in 1786.

<table>
<thead>
<tr>
<th>County</th>
<th>No. of Furnaces</th>
<th>Tons at each</th>
<th>Total in each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrewsbury</td>
<td>21</td>
<td>1,100</td>
<td>23,100</td>
</tr>
<tr>
<td>Staffordshire</td>
<td>6</td>
<td>750</td>
<td>4,500</td>
</tr>
<tr>
<td>Derbyshire</td>
<td>7</td>
<td>600</td>
<td>4,200</td>
</tr>
<tr>
<td>Yorkshire</td>
<td>6</td>
<td>750</td>
<td>4,500</td>
</tr>
<tr>
<td>Cumberland</td>
<td>1</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>Chefsire</td>
<td>1</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>Glamorganhire</td>
<td>6</td>
<td>1,100</td>
<td>6,600</td>
</tr>
<tr>
<td>Breconshire</td>
<td>2</td>
<td>800</td>
<td>1,600</td>
</tr>
<tr>
<td>Staffordshire</td>
<td>3 new furnaces</td>
<td>800</td>
<td>2,400</td>
</tr>
</tbody>
</table>

Total furnaces and coke pig-iron manufactured in 1788 53,420 tons.

An article entirely new, which though not discovered, was rendered a profitable and highly useful manufacture in the last 30 years. Average produce at each furnace 907 tons.
Total of charcoal iron 13,100 tons.
Ditto of coke pig-iron 4,820 tons.
Total of pig-iron manufactured in England and Wales annually 61,300 tons.
At the same period in Scotland there were erected, and in blast, charcoal furnaces in the west Highlands, viz.

<table>
<thead>
<tr>
<th>County</th>
<th>No. of Furnaces, Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goatfield</td>
<td>1 700 700</td>
</tr>
<tr>
<td>Bunawe</td>
<td>1 700 700</td>
</tr>
<tr>
<td>Coke pig furnaces, viz.</td>
<td></td>
</tr>
<tr>
<td>Carron</td>
<td>2 1,000 4,000</td>
</tr>
<tr>
<td>Wilsontown, or Cleugh</td>
<td>2 820 1,600</td>
</tr>
</tbody>
</table>

Total quantity of pig-iron manufactured in Scotland 8,700 tons.
Average produce for each furnace annually 875 tons.
Total quantity of pig-iron made in England and Wales 77,613,000.
Annual quantity manufactured immediately preceding the introduction of pit-coal for furnace fuel 85,683,300.
Annual increase in 30 years 26,500,950.

The period of 1788 or 1790 may be called a new era in the manufacturing of pig-iron. The double power engine of Mr. Watt had now become more general, and was used yearly.
yearly finding its way into blast furnace works. The regular and increased effects of this very powerful machine were soon felt in most of the iron counties. The produce of the furnaces in metal greatly increased as to quantity, and as they became more prosperous, stimulated others to engage in similar undertakings. New works were yearly projected, and several blowing furnaces annually added to the former list; so that in eight years the manufacture of pig-iron had nearly doubled itself.

The following table is a curious illustration of this fact. It was drawn up as an authentic document of the returns made from all the blast furnace proprietors in Britain, of the number of their furnaces, and the annual quantity of pig-iron manufactured at their respective foundries. These returns were made at a time when it was in the contemplation of the legislature to impose a tax upon pig-iron, and are copied from Dr. M’Nab’s letter to the chairman of the committee of the house of commons upon the subject of the coal trade.

### NAMES of all the FURNACES in Great Britain, with the Excise Return of the Quantity of Pig Iron made in 1796; the Quantities supposed and calculated upon; and the Returns of the Quantities really made.

<table>
<thead>
<tr>
<th>NAMES OF FURNACES</th>
<th>No. of Furnaces</th>
<th>Division</th>
<th>Excise Return</th>
<th>Supposed Quantity</th>
<th>Exact Return</th>
<th>From whom this Information was received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apedale</td>
<td>1</td>
<td>Chester</td>
<td>2100</td>
<td>1000</td>
<td>728 ½</td>
<td>T. S.</td>
</tr>
<tr>
<td>Silverdale</td>
<td>1</td>
<td>Do.</td>
<td>2600</td>
<td>1200</td>
<td>1230</td>
<td>Ditto.</td>
</tr>
<tr>
<td>Bear pott</td>
<td>1</td>
<td>Do.</td>
<td>2080</td>
<td>1200</td>
<td>210</td>
<td>W. R.</td>
</tr>
<tr>
<td>Deddington</td>
<td>1</td>
<td>Do.</td>
<td>1664</td>
<td>400</td>
<td>325</td>
<td>E. K.</td>
</tr>
<tr>
<td>Newland</td>
<td>1</td>
<td>Do.</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>Excife.</td>
</tr>
<tr>
<td>Backbarrow</td>
<td>1</td>
<td>Do.</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>E. K.</td>
</tr>
<tr>
<td>Dale Abbey</td>
<td>1</td>
<td>Derby</td>
<td>474</td>
<td>474</td>
<td>443</td>
<td>A. R.</td>
</tr>
<tr>
<td>Morley Park</td>
<td>1</td>
<td>Do.</td>
<td>1728</td>
<td>1728</td>
<td>1728</td>
<td>Excife.</td>
</tr>
<tr>
<td>Butterby</td>
<td>1</td>
<td>Do.</td>
<td>936</td>
<td>936</td>
<td>936</td>
<td>Do.</td>
</tr>
<tr>
<td>Flaxley</td>
<td>1</td>
<td>Gloucester</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>Do.</td>
</tr>
<tr>
<td>Fore of Dean</td>
<td>1</td>
<td>Hereford</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>Do.</td>
</tr>
<tr>
<td>Abbey Tintern</td>
<td>1</td>
<td>Hereford</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>not exactly known</td>
</tr>
<tr>
<td>Bithopwood</td>
<td>1</td>
<td>Do.</td>
<td>500</td>
<td>500</td>
<td>947</td>
<td>E. K.</td>
</tr>
<tr>
<td>Cornbrook</td>
<td>1</td>
<td>Do.</td>
<td>1000</td>
<td>1000</td>
<td>482</td>
<td>W. R.</td>
</tr>
<tr>
<td>Bringwood</td>
<td>1</td>
<td>Do.</td>
<td>500</td>
<td>500</td>
<td>250</td>
<td>Do.</td>
</tr>
<tr>
<td>Leighton</td>
<td>1</td>
<td>Do.</td>
<td>780</td>
<td>780</td>
<td>780</td>
<td>Excife.</td>
</tr>
<tr>
<td>Wisbeч Moor</td>
<td>2</td>
<td>Do.</td>
<td>2000</td>
<td>2600</td>
<td>2500</td>
<td>Do.</td>
</tr>
<tr>
<td>Shelf</td>
<td>1</td>
<td>Do.</td>
<td>1000</td>
<td>1000</td>
<td>1140</td>
<td>Do.</td>
</tr>
<tr>
<td>Birkenhaw</td>
<td>1</td>
<td>Do.</td>
<td>780</td>
<td>780</td>
<td>846</td>
<td>Do.</td>
</tr>
<tr>
<td>Remihaw</td>
<td>2</td>
<td>Lincoln</td>
<td>500</td>
<td>500</td>
<td>705</td>
<td>J. W.</td>
</tr>
<tr>
<td>Old Park</td>
<td>3</td>
<td>Salop</td>
<td>11332 ½</td>
<td>6240</td>
<td>5962</td>
<td>W. R.</td>
</tr>
<tr>
<td>Horshay</td>
<td>1</td>
<td>Do.</td>
<td>4927 ½</td>
<td>2060</td>
<td>1458 ½</td>
<td>Do.</td>
</tr>
<tr>
<td>Lightmoor</td>
<td>3</td>
<td>Do.</td>
<td>8946</td>
<td>6240</td>
<td>3408 ½</td>
<td>Do.</td>
</tr>
<tr>
<td>Coalbrook Dale</td>
<td>3</td>
<td>Do.</td>
<td>7175</td>
<td>4162</td>
<td>2659 ½</td>
<td>Do.</td>
</tr>
<tr>
<td>Madely Wood</td>
<td>1</td>
<td>Do.</td>
<td>3777 ½</td>
<td>2080</td>
<td>1856 ½</td>
<td>Do.</td>
</tr>
<tr>
<td>Jackfield</td>
<td>2</td>
<td>Do.</td>
<td>7086</td>
<td>4160</td>
<td>1820</td>
<td>Do.</td>
</tr>
<tr>
<td>Benthal</td>
<td>1</td>
<td>Do.</td>
<td>3702 ½</td>
<td>1600</td>
<td>1554 ½</td>
<td>Do.</td>
</tr>
<tr>
<td>Willey</td>
<td>1</td>
<td>Do.</td>
<td>1775</td>
<td>1400</td>
<td>1076 ¾</td>
<td>Do.</td>
</tr>
<tr>
<td>Broseley</td>
<td>3</td>
<td>Do.</td>
<td>7590</td>
<td>6240</td>
<td>5068 ½</td>
<td>Do.</td>
</tr>
<tr>
<td>Ketyley</td>
<td>1</td>
<td>Do.</td>
<td>4730</td>
<td>3400</td>
<td>3367 ½</td>
<td>Do.</td>
</tr>
<tr>
<td>Snedhill</td>
<td>2</td>
<td>Do.</td>
<td>4720</td>
<td>4160</td>
<td>3323</td>
<td>Do.</td>
</tr>
<tr>
<td>Donnington Wood</td>
<td>2</td>
<td>Sheffield</td>
<td>940</td>
<td>940</td>
<td>940</td>
<td>Excife.</td>
</tr>
<tr>
<td>Chesterfield</td>
<td>1</td>
<td>Sheffield</td>
<td>1800</td>
<td>1800</td>
<td>1560</td>
<td>Meffrs. S.</td>
</tr>
<tr>
<td>Little Brampton</td>
<td>2</td>
<td>Do.</td>
<td>1274</td>
<td>1274</td>
<td>1274</td>
<td>Excife.</td>
</tr>
<tr>
<td>Winger Worth</td>
<td>2</td>
<td>Do.</td>
<td>1000</td>
<td>1000</td>
<td>761</td>
<td>W.-W.</td>
</tr>
<tr>
<td>Staveley</td>
<td>1</td>
<td>Do.</td>
<td>1092</td>
<td>1092</td>
<td>853</td>
<td>J. W.</td>
</tr>
<tr>
<td>Park</td>
<td>1</td>
<td>Do.</td>
<td>1092</td>
<td>1092</td>
<td>712</td>
<td>Excife.</td>
</tr>
<tr>
<td>Chapel</td>
<td>2</td>
<td>Do.</td>
<td>1456</td>
<td>1456</td>
<td>1456</td>
<td>J. W.</td>
</tr>
<tr>
<td>Horncliffe</td>
<td>2</td>
<td>Do.</td>
<td>800</td>
<td>800</td>
<td>950</td>
<td>Do.</td>
</tr>
<tr>
<td>Ellinor</td>
<td>1</td>
<td>Do.</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>Excife.</td>
</tr>
<tr>
<td>Breton</td>
<td>3</td>
<td>Do.</td>
<td>6000</td>
<td>6000</td>
<td>2000</td>
<td>Excife.</td>
</tr>
<tr>
<td>Holmes</td>
<td>1</td>
<td>Suffolk</td>
<td>172 ½</td>
<td>173</td>
<td>173</td>
<td>Do.</td>
</tr>
<tr>
<td>Abburnham</td>
<td>1</td>
<td>South Wales</td>
<td>1820</td>
<td>1820</td>
<td>1625</td>
<td>E. K.</td>
</tr>
</tbody>
</table>

Carried forward: 63 | 107,318 ½ | 77,905 | 61,722 ½
### SCOTCH FURNACES.

<table>
<thead>
<tr>
<th>NAMES OF FURNACES</th>
<th>No. of Furnaces</th>
<th>Excise Return</th>
<th>Supposed Quantity</th>
<th>Exact Return</th>
<th>From whom this information was received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carron,</td>
<td>-</td>
<td>5200</td>
<td>5200</td>
<td>5616</td>
<td>T. E.</td>
</tr>
<tr>
<td>Wilfortown,</td>
<td>2</td>
<td>2080</td>
<td>2080</td>
<td>2080</td>
<td>A. H.</td>
</tr>
<tr>
<td>Muirkirk,</td>
<td>2</td>
<td>3120</td>
<td>3120</td>
<td>2878</td>
<td>T. E.</td>
</tr>
<tr>
<td>Clyde,</td>
<td>3</td>
<td>3640</td>
<td>3640</td>
<td>3216</td>
<td>Do.</td>
</tr>
<tr>
<td>Omma,</td>
<td>2</td>
<td>3000</td>
<td>3000</td>
<td>2396</td>
<td>E. K.</td>
</tr>
<tr>
<td>Devon,</td>
<td>2</td>
<td>1600</td>
<td>1600</td>
<td>860</td>
<td>T. E.</td>
</tr>
<tr>
<td>Goatfield, (Charcoal)</td>
<td>1</td>
<td>1600</td>
<td>1600</td>
<td>1600</td>
<td>Do.</td>
</tr>
<tr>
<td>Bunawe, Do.</td>
<td></td>
<td>1600</td>
<td>1600</td>
<td>860</td>
<td>E. K.</td>
</tr>
<tr>
<td>Manufactured in England and Wales,</td>
<td>104</td>
<td>18,640</td>
<td>18,640</td>
<td>16,086</td>
<td>T. E.</td>
</tr>
<tr>
<td>Grand Total,</td>
<td>127</td>
<td>152,605</td>
<td>152,605</td>
<td>125,079</td>
<td></td>
</tr>
</tbody>
</table>

Average Produce of each of the English and Welsh furnaces, 1048 Tons per Annum.
Ditto of each of the Scotch Furnaces, 946 Tons per Annum.
The demand for iron articles of all kinds in this country not only continued unabated after the period of 1796, but kept increasing in a greater ratio than formerly; so that in the short space of five years, situations were occupied for nearly 50 additional furnaces, or additions made to established works of that extent. Between 1801 and 1802, it was ascertained that the following new furnaces were either building or actually in blast, in England, Wales and Scotland.

<table>
<thead>
<tr>
<th>Location</th>
<th>Blowing</th>
<th>Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>England and Wales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silverdale</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Sandhill</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Wibsey Moor</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Ketley</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Madely Wood</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Burnet's LeafoW</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Newcastle, Staffordshire</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cyfartha, South Wales</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Llanelly, Do</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aberdare</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Tipton, near Bilston</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Bloomfield</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Longacres</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Wednesbury</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Staffordshire</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Coalford, Gloucester</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Jackfield</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old Park</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Donnington Wood</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Deepfield, Staffordshire</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Gornall Wood, Do</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brierly Hill</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Bilston, near Wolverhampton</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>Dudley Wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Billingfly, Shropshire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newcastle upon Tyne</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total new Blast Furnaces</td>
<td>22</td>
<td>25</td>
</tr>
</tbody>
</table>

In Scotland:

<table>
<thead>
<tr>
<th>Location</th>
<th>Blowing</th>
<th>Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muirkirk</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Glenbuck</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Calder</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Markinch</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Shotts</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Blowing</th>
<th>Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufactured at, and previous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>121 furnaces, 125,079 tons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>168 furnaces, 172,079 tons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The respective proportions of this astonishing produce in pig iron manufactured in England and Wales, and in Scotland, will stand thus:

England and Wales, in 1796, 104 tons, 16,086.
Ditto, since that period, 40,000.
Scotland, in 1796, 17 tons, 16,086.
Ditto, since that period, 7,000.

Grand Total in Britain, 168 making 172,079 tons.

In recapitulating the interesting facts which will result from a review of the gigantic progress of this manufacture, the regular progressive quantity made at a furnace is remarkable, or, which is the same, a diminution of the number of furnaces to perform the same quantity of labour.

Dudley represents, that in his day, 1620, there existed, in England and Wales alone, 300 blast furnaces, for the sole making of pig-iron, to each of these have been assigned the yearly produce of 250 tons.

At a period considerably after this, and before the use of pit-coal was found profitable in the furnace, 50 furnaces produced yearly 17,350 tons of charcoal iron, or each furnace average, 347.

In 1788, there still existed in England 24 charcoal furnaces, which yearly manufactured 13,100 tons of metal, or from each furnace, on an average, 545.

At the same period, in England and Wales, 53 blast furnaces, at which coke was used, manufactured yearly 48,100 tons, which upon an average was nearly, from each furnace, 927.

The same year in Scotland, 8 furnaces produced 7,000 tons of iron, or from each furnace, 875.

In 1796, the number of furnaces in England and Wales amounted to 104, and yielded 180,993 tons of metal, which from each furnace was equal to 1,728.

The same year, in Scotland, 17 furnaces manufactured 16,086 tons of pig-iron, which is from each furnace, 946.

These are by no means sufficient data to form an accurate opinion of the real progress or improvement of our blowing machinery in Britain. In the collection of furnaces in 1796, a number of charcoal blairs were included, which, from their general small produce, blowing only four, six, or nine months a year, reduces the average considerably on the whole. It may now be safely asserted, that the average produce in iron at pit-coal blast furnaces in England and Wales, is at melting iron works, 1200 tons.

This bears a very striking contrast to the early exertions of the manufacturers in the sixteenth and seventeenth centuries, and exhibits a wonderful example of the general and rapid improvement of machinery in the last 50 years. With the improvements of machinery, the advancement of the manufacture of iron in general, and particularly of coke pig-iron, has kept equal pace. Nor have we sacrificed quality to quantity, but the reverse; for the melting pig-iron of our time is much more calculated for every variety of casting, than iron, equally saturated with the coaly principle, made with wood charcoal.

By comparing the value of a ton of pig-iron at different periods for the last 200 years, a pretty accurate opinion may be formed of the increased price of labour at iron works, and of the increased value of an object of universal utility in all our arts and manufactures.

About
BLAST.

About the year 1620, charcoal pig-iron sold for 6l. per ton. 1789, ditto for melting, 8l. 1798, ditto 9l. 10s.

Coal pig-iron, when first invented by Dudley, was sold at 12d. in 1788, it sold for 5l. 12s. 1798, ditto 9l. 10s.

And smooth-faced N° 1, sold at 9l. 10s. per ton, being double the rife in point of value in fourteen years that took place in the one hundred and seventy preceding the commencement of that period.

One thing is here worthy of remark, that in the period of 170 years one ton of coke pig-iron sold in value only 35s., i.e. between 1620 and 1788 but that in the short period of 14 years following 1788, an advance of 3l. per ton took place. One thing only may be offered in extenuation of that immense rife, that part of it was owing to the misunderstanding that took place between this country and some of the Baltic powers, which was no sooner adjusted than pig-iron fell in price. The article full, however, maintains itself at 8l. 10s. per ton, being double the rife in point of value in fourteen years that took place in the one hundred and seventy preceding the commencement of that period.

To point out proper channels, whereby to account for the annual consumption of such an immense quantity of raw materials, would prove a satisfactory source of information. The endless detail into which the foundry trade has now branched itself, the almost universal fabrication which it embraces, and the extensive diffusion of the sites of manufactories themselves, preclude the possibility of obtaining this with strict accuracy. The following statement, however, will tend to throw some light upon the subject.

It is reckoned, that the bar iron forges in British manufactured annually from pig-iron 40,000 tons of finished bars, which at the rate of 35 cwt. of pigs for every ton of iron bar produced, will account for 75,000 Tons.

Confirmed yearly in the creation of new furnaces, forges, machinery, &c.

Purchased by the board of ordnance in the flat of cannons, mortars, carabines, shot, and shells, &c. on an average of 1794, 5 l. 6 s. 10,935

Waste in melting from the pig, boring, &c. 1,300 12,235

Purchased by the navy board in the flat of baubles, &c. 2,664

India Company's annual supply in guns, shot, shells, carabines, &c. 5,000

Waste melting, boring, &c. 700 5,700

Merchant guns, carabones, shot, &c. for arming trading vessels 10,000

Waste in melting and boring 1,000 11,000

Ballast for Merchantmen and India men 5,000

Tons 111,599

For the difference between this and the total manufacture, recourse must be had to the large exportation to Ireland, and to the numerous and extensive casting foundries of London, Liverpool, Manchester, Birmingham, Workington, Newcastle, Edinburgh, Glasgow, &c. none of which melted under 2,000 tons yearly, and many of them from 4 to 5,000 tons of melting pig-iron.

We shall now leave this interesting subject with some general observations upon the origin and progress of the pig-iron manufacture, and its early use in the fabrication of callings.

It appears from Dudley, that towards the close of the reign of queen Elizabeth, blast furnaces had been constructed of size, and with machinery sufficient to produce upwards of two tons of charcoal iron per day. Such great products in iron were most probably confined to situations where there was abundance of water, and where water-wheels and bellows of a considerable magnitude were used. The more common modes of operation were confined to furnaces of an inferior size, which were supplied with air by means of hand-bellows, excited by cattle, or the labour of men. At the same period England enjoyed a considerable export trade, arising from her superior manufacture of iron guns, mortars, &c. As pig-iron had not been applied in any branch to the manufacturing of iron, it is probable, that these articles would be cast from the large blast furnaces; the flame of wood polishing but feeble effects compared to that of pig-iron, would render the application of the reverberating furnace, if then known, of no use in the casting of guns and mortars.

The non-application of pig-iron in every department of the melting foundry, would greatly retard the perfection, or even improvement of the art of moulding, and casting smaller and more general articles. The want of it, as the smelting fuel in the blast furnace, was long severely felt by the general backward state of the art of moulding and casting in this country, and allowed other nations with fewer advantages to get the start of us. It is highly probable, that long before the period formerly alluded to, the application of pig-iron had been speculated upon, either as an auxiliary, or as a substitute in every branch of the iron business. Its well-known inflammability and tendency to form a cinder, and the general decay of wood, would furnish ample grounds for what, to many at the time, would be considered as idle and visionary speculations. The advantages arising from the trade, as it was then situated, had been rigidly aforesaid, and fully appreciated by the established manufacturers. The blast furnaces, in point of extent, seemed only limited by the supply of wood. New ections, for want of a proper supply of materials, became impracticable; those already engaged were more anxious to preserve their supply, however much cumbered, than listen to innovation, which, by substituting pig-iron for the charcoal of wood, would likely give to the speculativ a great superiority in the market. It is also highly probable, that many of the iron works then started were at a considerable distance from pig-iron, the general introduction of which would prove fatal to their interests.

In this view of the subject, the adventurer with capital had every thing to hope, the established manufacturer every thing to fear, by change. Under these circumstances, the discovery, or rather the effusion of the practicability of making iron with pig-iron, was announced by Simon Stuartvant, in the year 1612, who, upon application, was favoured with a patent from king James, for the exclusive manufacture of iron with pig-iron, in all its branches, for the long period of thirty-one years. In return, the said Simon Stuartvant bound himself to publish a faithful account of his discoveries, which afterwards appeared in quarto, under the title of his Metallica. It is uncertain to what causes his failure was at the time attributed, but in the execution of his discoveries upon a large scale, he had found difficulties amounting to utter impracticability; for in the year following, he was obliged to make a surrender of his letters of monopoly.
The second adventurer in this unexplored path we find to have been John Ravenfon, esq. who, like Sturtevant, was successful in obtaining a patent for the new manufacture; but, like him also, was inadequate to the completion of it upon a profitable scale. Ravenfon was also enjoined to publish his discoveries under the title of his "Metallica," which was printed for Thomas Thorp, anno 1642. Several other adventurers stepped forth, all of whom had the mortification of resigning their patents, without having contributed to the success of their arduous undertaking.

In 1619, Dudley obtained his patent, and declared, that although he made only at the rate of three tons per week, he made it with profit.

This discovery was perfected at his father's works at Pen- fent, in Worcestershire. This gentleman's success in the various manufactures of iron with pit-coal, had united not only all the proprietors in the charcoal iron trade, but many new adventurers, who wished to share in the emoluments, or to acquire part of the fame of the new discovery. Their interest was sufficient to limit the duration of Dudley's patent from 3114 years. During the greatest part of this period, according to his own statement, he continued to make pig and bar iron, and various castings; all of which he sold much lower than the charcoal manufacturers. In the article of castings he must have had greatly the start of the charcoal foundries, as the quality of melting coke pig-iron is far superior to that of charcoal, particularly that made in this country for the general purposes of casting. Nor was the superior genius of Dudley always an object of passive indifference in the narrow estimation of the new adventurers and the established manufacturers. The envy occasioned by his uncommon success, produced at first a spirit of combination, which terminated in a hostile attack upon his devoted works. His improved bellows, furnace, forge, &c. all fell a prey to a lawless banditti, betwixt whom and its furious leaders no shades of distinction were visible, but those of avarice, ignorance, and the most contemptible prejudice.

To evade the mode of operation discovered by Dudley, or to introduce the making of coke pig-iron with greater advantage, a new plan was adopted by Captain Duck, major Wildman, and others, in the forest of Dean, where they erected large air-furnaces, into which they introduced clay pots resembling those used at glafs houles, filled with the necessary preparations of ore and charcoal. The furnaces were heated with the flame of pit-coal; and it is probable, that by tapping the pots below, it was expected that the separated metal would flow out. This rude process of "blasting" on a large scale, was in the end found utterly impracticable; the heat was inadequate to perfect separation; the pots cracked; and, in a short time, the process was abandoned altogether.

The misfortunes which befell the sanguine, but unfortunate Dudley, were an irreparable los to the perfection of the coke pig process. The hostile rivalships he had to encounter in consequence of the new ground he had occupied, as a manufacturer, together with a zealous attachment to the royal caufe during the civil war which followed his discovery, completely prevented his improvements from attaining a pitch of permanency and general utility. The refusal of a new patent after the restoration, prevented him from again entering the laborious paths of discovery and improvement, although it appears, that his former application to the perfecting of this branch of manufacture had not been unsuccessful, for in place of three tons of coke pig weekly, in his petition praying for a renewal of his ancient rights, he states, that he could now manufacture seven tons by means of a large furnace, and an improved bellows.

No greater pitch of improvement took place for nearly one hundred years after this period. The practicableness of the manufacture was discovered; but the mode of obtaining quantity, to ensure in general a profitable return, depended upon other circumstances than the proportioning of the raw materials together. Had machinery received the same improvements in the time of Dudley, it is more than probable that the rapid progress of the coke pig trade would have dated its origin from that period. But this great era in the history of our manufactures was reserved for a much later date; and in the improvements of the steam engine, we fee new life and exilience conferred upon every species of art that can be made subject to motion or mechanical control.

BLAST Furnace Works. are large and expensive buildings for the manufacturing of pig iron. An erection upon the smallest scale must consist of a furnace, casting-houle, bridge-houle, and blowing engine. The latter is sometimes, though seldom, worked by means of a water wheel. The most universal mode of blowing is by means of a steam engine. See Blowing Machine.

There is no general plan laid down for building a blast furnace work. The singular situation which should be occupied, to insure every convenience, renders this dependent upon the nature of the ground.

It is always reckoned a great advantage to place the blowing machine as at short a distance as possible from the furnace or furnaces, that the air may have the least possible travel in the conducting pipes. When this cannot be conveniently effected, the diameter of the pipes ought to be made sufficiently large to admit of the blast passing without any material friction.

The usual appendages to blast furnaces are mines of coal, iron-flone, and lime-stone. And these form no inconsiderable portion of the whole expense.

In situations where blast furnace building materials are at a moderate price, and when no uncommon difficulty occurs in the progress of the general operations, 15,000l. of sunk capital may be deemed requisite for one furnace; and for every furnace after this, 10,000l. may be added.

This great capital for many years kept the trade in the hands of a few; but of late, since capitalists have become more common, the number and extent of the blast furnace erections have become truly astonishing.

The following descriptions of plates illustrative of the plan and arrangement of blast furnace works will convey a tolerable idea of the nature of these buildings.

Plate XI. Blast Furnace Works, represents the ground plan of an entire fabric, consisting of

A. Scengine for blowing two furnaces.
B. 2 Blast furnaces.
C. 2 Bridge-houles.
D. 1 Cafting houle.
E. 1 Boiler-houle.
F. 2 Bollers.
G. 1 Chimney for boiler flues.
H. 1 Engine-houle, 40 feet long, 18 feet wide.
I. Pedefal for ileam cylinder: 7 feet square at base, and 4 feet at top.
J. Pedefal for blowing, or air cylinder. Bafe 10 feet square, top 7 feet square. These are generally built of folden hewn flone, and bedded with the greatest accuracy. From centre to centre of the two pedelfals is 24 feet, which is also the distance betwixt centre and centre of the ileam and air cylinders.
K. Door or opening through the lever wall. This wall at bottom is built $\frac{1}{2}$ feet thick, but is occasionally reduced
in point of thicknesses to 3 feet at top, as may be seen at the corresponding letter in the section.

E, Door or opening for carrying through the blast pipes from the top and bottom of the air cylinder to the water receiver below.

G, The boiler-houfe, 40 feet by 30 within the walls. As this is excavated from the solid hill to the depth of 30 feet, it is requisite to have the walls uncommonly strong. Those in the plan are 6 feet thick at bottom, and are reduced at three different heights in thickness, as represented by the interior lines.

HH, Two boiler-feats for boilers, 18 feet long, 9 feet high, and 7 feet wide.

II, Fire-places, 6 feet square.

KK, Dead plates before the bars or grates.

LL, Openings where the furnace doors are hung.

MM, Semi-circular openings formed beyond the dotted line or termination of the boiler, in which the flame from the grate rises to enter the iron flue or tube, which is placed in the centre of the boiler.

N, Chimney, 21 feet square within, and 50 feet in total height; from the bottom of the flue 42, and 8 feet from the foundation.

OO, Coal pits for containing small coals for the engine's supply. These are 8 feet by 6 at bottom, and widen gradually as they approach the surface of the coke yard. The coals are there emptied from the cart into the receivers, and the engine-man easily supplies his wants from the small openings which communicate with O into the boiler-houfe.

PP, Bridge-houfes for containing cokes, iron-stone, and lime-stone, for filling the furnace. Measurement within 42 by 40 feet.

QQ, Doors or entrances from the coke yard into the bridge-houfes.

RR, Openings from the bridge-houfe, which is here connected with the furnace, by means of an arch and parapet walls. This is more fully seen in the elevation section P, along this bridge the materials are carried or wheeled into the mouth of the furnace.

SS, Two blast furnaces, 34 feet square in the base.

T, Cutting-houfe 152 feet long by 48 in width from the front wall or arch of the furnace, or 88 feet wide from the front wall of the engine and bridge-houfes, and 24 feet high in the side walls.

W, Water receiver for receiving and equalizing the column of blast. Length 40 feet, and breadth 18 feet.

X, The space in which the equivalent column of water rises, 3 feet wide. The exterior line designates the inverted iron chéf; the interior lines, the different bâmetens formed by the flues work laid upon the chéf to prevent it from rising when the engine is at work.

Y, Termination of the blast conduit pipes from the air cylinder into the iron receiver, 2 feet 6 inches diameter.

Z, Position for the horizontal range of pipes to branch off, which are meant to convey the blast to the opposite tuyeres, as, betwixt the back wall of the furnace, and the bridge-houfe.

dd, The two tuyeres fixed next the water receivers. From d proceeds a straight pipe along the centre line h, for conveying the blast to that side of the furnace.

c, Front arches, under which the furnace workmen perform all the labour of tapping, cutting, and cleaning the furnace.

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Plate XI. Blast Furnace Works.

Elevated section of the ground plan, Plate XI. through N F B D C E and X.

A, Incline of the blast engine-houfe.

B, Steam cylinder pedestal.

C, Blowing or air cylinder pedestal. Both of these are built upon 4 or 6 inch planking, laid upon strong logs, which are again supported upon the solid stone buildings, a, running from the lower wall along the side wall of the engine-house, to the wall perpendicular to E. The binding down bolts that pass through the fringes of the cylinders are strongly keyed upon the under side of the logs, and are at all times easily accessible.

D, The lever wall and opening of communication between the flume and blowing end of the engine-houfe.

F, Door or opening into the calling house and water regulators.

E, Door to the boiler-houfe.

G, The boiler-houfe.

H, One of the boiler seats.

I, One of the boilers, 8 feet long, by 9½ wide, by 7 high.

K, Man-hole door for entering the boiler.

L, Thorough arch in the foundation of the chimney.

M, Thrust, or opening into the chimney, for the passage of the flame and smoke.

O, Coal pit for containing fuel for the engine.

P, Arched passage of communication between the bridge-houfe and furnace mouth. The opening in the bridge-houfe is more distinctly seen at R, Plate XI.

Q, Side view of one of the blast furnaces, as connected with its corresponding bridge-houfe.

W, Water vault, or cistern, for receiving the inverted chéf. In rocky foundations this is cut out of the rock, but in soft ground the excavation is made and lined with well jointed mason work, puddled behind with clay to prevent the loss of water.

T, Cutting-houfe and roof.

b, The tuyere arch.

c, The low, or lintel of cast-iron, 12 inches square.

d, The orifice at which the blast enters, called the tuyere.

e, Spring beams of the engine-houfe, A. These are composed of two logs 14 inches square. The main gudgeon, seat, and beam rest upon these.

f, Stay logs for the steam cylinder.

g, Ditto, for the blowing cylinder.

Description of Plate XI. Blast Furnace Works.

Cross section and elevation of Plate XI. through S Y S.

SS, Section of two blast furnaces, and their situation as connected with the blowing apparatus.

Y, The branch pipe for communicating the air to the inside tuyeres of the furnace. This pipe has another branch of communication behind, which communicates it to the blast pipes which descend from the blowing cylinder at A, and to the double column of pipes which are carried round behind the furnace to the opposite tuyeres.

CC, View of the pipes which convey the air to the opposite tuyeres, where double blast is in use.

D, Front wall of engine and bridge-houfes.

X, Iron chéf inverted in the water receiver, and connected with the blast pipes.

VV, Opening all round for the water to ascend, as it becomes expressed from the chéf by the impelling force of the blast.

4 D O, Logs.
O, Logs on which the chef is inverted, to preserve it from the floor of the water receiver, from 12 inches to 18 of space.

Description of Plate XIV. Blast Furnace Works.

Ground plan of an extensive blast furnace foundery, consisting of four furnaces and two blast engines. The peculiar construction of this plan is, that only one furnace may be erected at a time, and afterwards the whole number; still preserving that regularity and uniformity of design which will at any time make the blowing machinery of one part subservient to the whole, in case of accidents, loppages for repairs, &c.

A, Engine-house, with cylinder, pedestals, lever wall, opening, &c.
B B, Two boiler-feats and boilers.
C C, Water regulators for the blast, which conveniently communicates, by means of pipes, with the blowing cylinders, placed upon the pedestals behind A, I.
D D, &c. Centre line of the whole blast pipes. This extensive column may be lo arranged, as to enable the furnaces to be blown each with two tuyeres; and the blast of one engine made to pass through the whole. The general communication is effected by carrying the chief column either behind the furnaces, or, as in the plate, through the main pillar of the furnace, by means of an arched opening 3 feet wide.
E, Ground plan of the hearth, squares, and pillars of four blast furnaces.
FFF F, Bridge-houses for materials, and filling or charging the furnace.
GGGGG G, Openings into the furnace top.
H H, Calfing-house.
I I, Second blast-engine, upon the same plan as A. Each of the two engines ought to be calculated to blow two furnaces, and occasionally, when any thing goes wrong with one, the blast of the other could be easily distributed for a time among all the furnaces.
BLASTED, in Antiquity, something stuck with a blast.
Among the Romans, places blasted with lightning were to be consecrated to Jupiter, under the name of bidentalia, and pataelia. It was also a ceremonial of religion to burn blasted bodies in the fire.

BLASTING of stones, in Agriculture, the operation of tearing afunder large stones or rocks, which are in the way of the plough or other instruments employed in breaking up ground, by means of gun-powder. The method of performing this business is by boring a large hole, eight, ten, twelve, or more inches deep, according to the nature and size of the stone or rock to be blasted, by means of a chisel for the purpose, and then introducing a sufficient quantity of gunpowder, and afterwards carefully ramming the hole up with small fragments of stone or other solid materials, only leaving a very small aperture, by placing a fixed pricker of sufficient length and suitable dimensions, with a handle at the top, at first into the powder, and frequently turning it round while the hole is ramming up. After the hole is quite filled, by forcing the hard materials in with a proper instrument, the pricker is withdrawn, and the aperture left by it filled to the top with gunpowder, and then a match of tow, straw, or other light inflammable material laid to it, and set on fire.

It is observed by Mr. Headrick, in the second volume of "Communications to the Board of Agriculture," that in order to perform this operation properly some experience is necessary, and that a skilful workman can frequently rend stones into three equal pieces, without causing the fragments to fly about. This, he says, depends upon the depth and position of the bore. It is also remarked, that a small portion of quick-line, in fine powder, is found to increase the force, and consequently to diminish the expense of blasting stones. On these grounds the following is offered as a substitute for gun-powder, which is now become very expensive, though, as is freely confessed, without any experience of its effects. Supposing fig. 1, Plate III. (Agriculture) to be a large stone to be blasted or rent; ab, a bore-dent down into it in the usual manner. This bore being then well cleaned out and dried, is to be filled from b to c with the purest quick-line, or such as will best suit in blazing. That it may be perfectly quick it should be taken red hot from the kiln, or the small furnace where it has been burnt; being then rammed in hard with the jumper or punch a c, the upper part of the bore is to be crammed with rotten rock in the ordinary way. The pricker being then removed leaves the aperture at b, a, b, a small pipe of copper, of less diameter than the needle or pricker, having an orifice about the dimensions of the flaw, used to convey the fire down to the gunpowder, with a funnel d to receive water, is introduced into the aperture. Perhaps a flaw or small red flusk is the lower part of the funnel, among tallow bees wax, might serve the purpose of a copper pipe. Things being thus prepared, pour water into the funnel d; and if the pipe be not too high, so as to prevent the air from escaping from the aperture, left by the pricker, it will descend and cause the lime to flake in the bore c b. Every one knows how irresistibly the purest quick line attracts water, and with what prodigious force it expands in blazing into three or four times its former bulk. From these data it is therefore inferred, that the flaking of lime, in such circumstances, would burst or rend the stone in pieces; but the succeds of such an experiment, it is observed, must depend entirely upon using lime of the utmost purity, and having it very hot, and perfectly caustic when it is put in.

It is further remarked that if the bore c b were filled with water, and the aperture afterwards rammed up, the water being made to freeze by cold, would rend the stone; for when water passes from a fluid to a solid form, it expands with irresistible force, though frost cannot be depended upon in this climate.

BLASTOLOGY, from 6aoe, bud, and ke, I gather; the regular and labored pruning of vines.

BLATNA, in Geography, a town of Bohemia in the circle of Prachlitz, near which is an inland lake, which is the source of the river Ullava.

BLATTA, in Middle Age Writers, denotes a purple in the wool or silk, dyed with the liquor of the blatta.

This was otherwise denominated blatta ferica, or blatta ferica; whence also blattarius, used in ancient writers for a dyer in purple.

BLATTA, in Entomology, a genus of hymenopterous insects, called in England cock-roaches, or black beetles. The head is infested; antennae facetious; feelers unequal and filiform; wing-cases and wings smooth, the former somewhat coriaceous; thorax flatish, orbicular, and marginal; legs formed for running; abdomen terminating in two articulated appendages above the tail.

The blatta, considered in a collective point of view, are a very troublesome race of insects. Certain kinds, that are happily for us peculiar to the hotter parts of the world, are so formidable both in respect of number and talents for doing mischief, that they are really considered as a pest to society in those countries which they infest. These noxious creatures enter houses and commit various depredations on the furniture, devour provisions of every kind, tear or gnaw holes in clothes, torment the inhabitants with their bite, and otherwise do considerable injury. The fort of blatta most abundant in England
England was originally a native of the eastern parts of the globe, or, as some suppose, of America, from whence it was long since imported into Europe, and is now completely naturalized to our climate. This is the blatta orientalis of systematic writers. Another creature of this kind, blatta Americana, was also introduced with the raw fuggs brought some years ago to Europe from America.

All the known species of cock-roaches, whether in the larva, pupa, or perfect winged state, secrete themselves in the daytime, and wander about during the night in search of food. In allusion to this circumstance, the ancients called them lucifer, and they are still called so by the Moroccans. The common cock-roach will eat almost any sort of provision, preferring, however, bread, meal, fuggs, and stale meat, either of which it is observed to devour with the greatest eagerness. Except in being completely deftillate of wings and wing-cates the larva resembles the perfect insect, and in the pupa state nothing more than the rudiments of the wings are perceptible. In the dark they are remarkably active and brisk in all their motions, and on the least disturbance, or the return of light, retreat again to their lurking places with timidity and precipitation. They can fly swiftly, but they seldom use their wings for this purpose; even when most eagerly pursued they are known to trust rather to their legs, with which they are able to run with no small celerity. The fumes of charcoal, we are told, may be employed with success in destroying these wonderful insects.

The following species of the blatta genus, are described by Lamæus, Fabricius, Gmelin, &c. viz. gigantea, madura, egypitana, occidentalis, surinamensis, americana, asulicula, erythropoda, capucina, indica, nivea, irrorata, viridis, brunneescens, petiveriana, orientalis, cilia, pila, variegata, lappacea, germanica, rufescens, maculata, marginata, obscura, nitidula, fulva, denia, chlorotica, latifrons, atterna, perpiciellaris, aqutica, schaefferi, sultryata, pennsylvanica, livida, rufa, geisla, minuta, testina, ocellata.

Blatta, according to some writers, was also used for a particular kind of kermes, or cherrises; or, according to others, for the purple-worm, by which the eucus codii, or cockaded insect was most likely meant. But both of these acceptations are suspicious. We know that the word blatta was anciently used for a kind of moth, whose fat was reputed excellent for the ears. This last was called the book-worm moth. See Bookworm.

Blatta Americana of Catesby is of the clyta genus with modern entomologists. Gmelin speaks of it under the name of clyta americana.

Blatta Byzantina, in Physiology and Pharmacy, the operculum, or lid of a turbinate shell, whose fin yields a purple dye.

The blatta differs from the lid of the bucinum or purpura, in figure; the first being oblong, the latter round; but in the latter they are ordinarily confused, and fold for each other. The blatta byznatica is also confounded by apothecaries with the unguis odoratus, from which it ought to be distinguished, as belonging to another kind of shell-fish.

Dr. Lillie takes the Blatta byznatica to have succeeded the unguis odoratus, and to have been brought into the shops in its place. In Dioscorides’s time, the belt was brought from the Red Sea, viz. the palell and fatted: the blacker and lefs, from Babylon, or the Perisan gulf; but it feems, latter times took up with those found about Conflantinople; where the prelent fhoop blatta had its name.

The name blatta seems to have been given to this operculum from the colour; as being of a dark hair-colour, as the common blatta orientalis, or common cock-roach, so frequent in London, is.

The blatta byznatica, when exhibited internally, renders the body felable, softens the spleen, and confufes percutant humours. When used externally, by way of fumigation, it refires epilepftic patients, and women labouring under a ftupor of the uterus. In other diforders its effects are the fame with those of most tiftaceous flubfances.

Blattaria, in Botany. See Cellia, Lythrum, Pentapetes, and Verbascum.

Blattaria, in Entomology, a species of clyta genus, which inhabits Aulrian; the colour is black; thorax broad; wing cailes and the legs taffeaceous and glossy. Shranck. Inf.

Blatum-Bulgium, in Ancient Geography, a promontory of Britain, mentioned in Antoinine’s Itinerary, concerning the situation of which antiquarians have entertained different opinions. Camden, Calke, Baxter, and some others, have fixed it at Souliet, on the south coast of Solway firth, at the end of Severus’s wall; yet Mr. Hordley affigns its situation at Middlebury in Annandale. Here, as at the most remote limit of the province of Britain, Antoinine commences his second route. A military way led from Blatum-Bulgium to Luguvallium, or Carlisle.

Blau, in Geography, a river of Germany, in the circle of Swabia, which rises near the foot of a hill in the Blaupole, as it is called, and runs into the Dunabe at Ulm.

Blau bei, a town of Germany, in the circle of Swabia and duky of Wirtemberg, in a small district of the same name, seated on the river Blau, 7 miles W. of Ulm.

Blaurudelius, in Zoology, (of unknown genus,) phoca erinata of Erxleben and Gmelin, and booted seal of Tennant.

Blauenthal, in Geography, a town of Germany, in the circle of Upper Saxony.

Blauer-Boie, in Zoology, one of the names given by authors to the blue antelope, antelope lencephus. Vide Kolbe Vorger.

Blavet, in Biography, a celebrated performer on the German flute, the first, perhaps, who greatly distinguished himself by that instrument after it superseded the common flute, and became in general use. He was born at Feancon, and coming to Paris in 1723, soon acquired a great reputation. The prince of Carignan, who knew his merit, enlisted him in his service; gave him an apartment in his hotel, and a pension. He was afterwards appointed superintendant of the comte de Clermont’s band, and remained in that nobleman’s service to the end of his life.

To his admirable talents, Blavet joined the requital virtues of society; his manners and conduct were blameless, his temper tranquil, and his probity incorruptible. He married at eighteen, and lived upwards of fifty years with his wife in uninterrupted harmony and affection. We are always glad when to great professional abilities, such an effimable character can be joined.

Blavet’s excellence on the German flute had been heard of all over Europe, before the character of Weideman was established in England, or that of Quantz in Germany.

About the end of 1765 he was attacked with the stone, which was a malady then more dangerous than it became afterwards, by the skill, experience, and success of eminent surgeons; but determining too soon, like our poor countryman, Dr. Worgan, to submit to the operation, he died under it in 1768, leaving behind him the eelmen and regret of all who knew him.

Blavet, in Geography, a river of France, which runs into the sea opposite Belle Isle. This forms a good harbour and spacious road.
Blaufich, in Ichthyology, the name under which Salmo Waltmanii of Bloch and Gmelin is described by Wartmann Bech. Berlin Naturf. Fr. 3, p. 184.

BLAVIGNAC, in Geography, a town of France, in the department of the Lozère, and chief place of a canton in the district of St. Chely d'Apcher; 6 miles south of St. Chely.

BLAUKOEPFKE Rothe Amsel Frisch, one of the synonymous names of lanita minor, Gmel.

BLAUMEISE, in Ornithology (Frisch, Hist. of Birds), the blue titmouse of English writers, and parus caruleus of Linnaeus.

BLAUSLUYS, in Geography, a town of Holland, 2 leagues west of Goesdenburg.

BLAUSPECHT, in Ornithology, the name of the common nut-hatch; fista Europea in Frisch, Hist. of Birds.

BLAVE, Blavia, or Blavutum, in Geography, a sea-port town of France, in the department of the Gironde, and chief place of a district of the same name nestled on the Gironde, or Garonne, near its confluence with the Dordogne. Its castel is situated on a high rock, and it is defended by a fort constructed on an island in the river, which is here 1000 toises wide; and on the other side of the river, in the country of Mende, is another fort. All ships that are going up the river to Bordeaux, deposit their arms and cannon at Blaye, before they pass the river, and take them up on their return. The town contains 3580, and the canton 13,819, inhabitants. The territory comprehends 160 kilometres, and 14 communes. It is distant 20 miles north from Bordeaux. N. lat. 45° 9'. W. long. 0° 45'.

BLAYMARD, or Blymard, a town of France, in the department of the Lozère, and chief place of a canton, in the district of Mende. The place contains 546, and the canton 11,802, inhabitants. Its territory comprehends 347½ kilometres, and 11 communes; 31 leagues east of Mende.

BLAZE, in the Menage. See Star.

BLAZEGNIES, in Geography. See Malplaquet.

BLAZEY BAY, a bay in the English Channel, on the south coast of Cornwall, between Fowey and Deadman point.

BLAZING STAR. See Comet.

BLAZON, or Blason, in Heraldry. To emblazon is a term signifying the describing of things borne in coat-armour, in such manner as they ought to be represented, according to the rules of heraldry. To blazon, originally signified the blowing or winning of an horn by the heralds, at jousts and tournaments, when they proclaimed and recorded the achievements of the combatants.

Blea, in Vegetables, is that part of a tree, which lies immediately under the bark, and between that and the hard wood, and is the first product of the alteration of the bark into wood by the natural growth and strengthening of the fibres. See Botany.

While the blea remains yet soft, and retains something of the nature of bark, it may maintain a feeble vegetation; but when it is grown absolutely hard and woody, it can contribute nothing to the growth of the tree. The vegetation of the young branches of trees is the most lively and vigorous, and the only one that goes as far as the flowers and fruit, because these branches are little else but bark.

Bleaching. The art of bleaching consists in removing the coloured matters intermixed with vegetable and animal substances in their natural state, or such as they have subsequently imbibed by accident, or some artificial processes. Edward Hufley Delaval, esq. F.R.S, has shewn, by a number of accurate experiments on the cause of the permanent colours of opaque bodies, published in the second volume of the second edition of the Memoirs of the Literary and Philosophical Society of Manchester, "that when the colouring matter of plants is extracted from them, the solid fibrous parts, thus divested of their covering, display that whiteness which is their distinguishing character. White paper and linen are formed of such fibrous vegetable matter, which is bleached by diffusing and detaching the heterogeneous coloured particles." He further observes, "it appears that the earth, which forms the solid substance of plants, is white; that it is separable from the colouring matter by several means; that whenever it is either pure and unmixed, or diffused through transparent colourless media, it exhibits its whiteness, and is the only vegetable matter which is eluded with a reflective power; that the colours of vegetables are produced by the light reflected from this white matter, and transmitted from thence through the coloured coat or covering, which is formed on its surface by the colouring particles; that whenever the colouring matter is either discharged or divided by solution into particles, too minute to exhibit any colour, the solid earthy substance is exposed to view, and displays that whiteness, which, as before noticed, is its distinguishing character."

He states that in all those animal matters which do exhibit colours, the colouring particles are endued with the same properties, and are regulated by the same laws, which prevail in vegetable substances.

A reference to the original paper can only do justice to the observations of this excellent philosopher, confirmed by numberless experiments; but what is already said will be sufficient to give an idea of the nature of the processes of bleaching, and that it depends on the removal of the matter interposed betwixt the air and this white substance.

The national importance of bleaching is so great, that it comprehends nearly the whole of the cotton and linen manufacture, and goes to an extent beyond most other arts.

Its operation in these branches may be considered under two points; viz. 1st, the separation of extraneous substances from linen and cotton, which is effected by steeping, fermentation, or weak alkaline leys; 2d, the separation of the constituent or inherent colouring matters of those substances, which is effected by different modes, and by various modifications of each method, as exposure to the air, light, the use of alkaline leys, soap, oxygenated acetic acid, combinations of oxygenated acetic acid with other matters, sulphuric acid, hepar sulphuris, &c.

To impress upon the mind the nature of the bleaching business, it will be proper first to describe the vesseled used in the finery operations of steeping, boiling, bucking, washing, fouling, &c. then to proceed to the management of the processes, with some observations on its effects; and, lastly, how to make or procure the articles necessarily employed in this art, and the method of ascertaining the qualities of each, adding some observations on the theory of the operations.

Bleaching of goods, particularly cotton manufactures. 11. On Steeping.

The vessels generally used in bleaching are made of such wood as will not communicate any colour to the liquors they are to contain, and therefore deal or fir wood is preferable to most others. The vessels employed for steeping the goods when received from the loom are usually of the form A, fig. 1. Plate I. Bleaching. The goods when received from the weaver contain not only the natural colouring matter of the cotton, which is of an oily nature, and which prevents the cloth from easily imbibing water, but also a substance called fowina, being a paste made of flour and water, used during the weaving, and applied with brushes upon the warp, in order to give a firmness to the threads by glueing.
Bleaching.

The operation of bucking is on a similar principle to that of boiling, but in a much more forcible manner, as a greater quantity of ashes is added in proportion to the water made use of, and more heat is received and retained in the large bulk of cloth placed in the bucking tub, which expands the fibres of the cotton, and admits the more powerful action of the alkali, as is easily demonstrated by observing the very dark colour of the alkaline yeys which have been used in bucking, in comparison with those which have been employed in boiling goods. To those persons who wish for a full and minute account of the absorption and power of heat, we recommend a perusal of Count Rumford's interesting essays on the subject of heat.

The black alkaline ley which remains after bucking should be preferred, as it will answer, after evaporating and calcining, as hereafter mentioned, to form again fresh alkaline salts of good quality. With a view to preserve as much of the ley as possible, it will be advisable to wring it out into a tub from the cloth or yarn, after it is bucked, by the method shown in Plate IV. fig. 2, where R is two strong polls, fixed in the ground, S I two wringing hooks, upon which the cloth U is twilled, to force out the liquor, by W, a winch handle, which turns the hook round on the pole R. The two hooks are kept at a proper distance from each other, one by a collar at X, the other by an iron pin at Y, which runs through a hole in the square part belonging to the hook I, which square has several holes in it to bring this hook nearer to the hook S when required.

4th, Soaping.

This process consists in immersing, for the space of twelve hours, or more, the yarn or cotton in a mixture of water and sulphuric acid (vitriolic acid), well incorporated; the proper strength of which mixture is about the acidity of lemon juice, and is usually directed by the tale. The four kettle should be made of lead, of a form which can be heated; the heat of the liquor should not be greater than the hand can bear with ease. This four kettle should be half sunk within the ground, as shown in Plate IV. fig. 2, where M is a section of the four vessel; N, the level of the ground; O, the brickwork; P, the fire-place, which is a half circle, or arch, without any grate; I I I I, a space filled with dry ashes, between the lower part of the four vessel and the brick-work, in order to preserve the heat of the liquor in that part of the vessel below the surface of the ground; K, a brick hearth, on which part of the fire is made; L, a cast iron plate, bending in the form of the four kettle, which is intended to prevent the fire placed on the floor at P K, from acting upon the lead of the four vessel; Q I, the space betwixt the vessel and brickwork, through which the smoke goes to the chimney.

The construction of this apparatus is upon the same principle as the warm vats made use of by the blue dyers, the intent not being to make the liquor boil, but to keep it at a degree of heat which the hand can long and easily bear. There are no grate or bars necessary in this fire place as the coals will burn with sufficient rapidity without them.

The goods may be put into this acid liquor either in a wet or dry state. The bell plan is to immerse the goods in the evening in the acid liquor cold, let them remain covered with it all night, then in the morning make a fire and bring the liquor to a boil heat, in which state having a winch over the vessel, similar to that represented at C, fig. 1, give the goods a few turns over it, that every part of them may be exposed to the action of the liquor. The goods may then be bapped round the winch to drain a little, to prevent an unnecessary waste of the acid liquor, and afterwards carried to the wash-wheel, or river, to be well washed from
the acid, so that the cloth may be perfectly tasteless to the tongue. It is a remarkable circumstance, that cloth may remain immered a very considerable time in a strong acid liquor without rotting, but that if exposed to the air or heat of a stove, if a very small portion of acidity remains in the cloth, it becomes so concentrated by heat, as to damage the cloth immediately; therefore too much attention cannot be paid to this point.

The use of the acid liquor above-mentioned is to dissolve any earthly or metallic matters inherent in the cloth, or which may have been communicated to it accidentally, or which it may have derived from the impurity of the alkaline falls used in the bucking or boiling.

A considerable quantity of the acid liquor may be preferred by washing the goods which have been foured through a tub of clean cold water, previous to washing them, and replunging the four kettles with this acidulated liquor, rather than water only.

5th, Washing.

After every operation in which acids or alkaline substances are used in bleaching, it is necessary that the goods should be well washed in clear water; it is therefore of the greatest consequence that the water of a bleach ground should be pure, and its considerable quantities, fresh, for instance, as is perfectly transparent, will not curdle with soap, nor yield any degree of blackness with powdered gall nuts, or, which is a more accurate test, with a mixture of galls by infusion in spirits of wine.

Various methods have been invented for the purpose of washing out the impurities of the articles to be bleached: such as cleaning them in a large current of water by flaking them with the hand in the stream, beating them on blocks of wood with a flat paddle, or hand brush, beating them on a large flat stone with long wooden levers, flattened underneath, palfing them over winches placed above vesseis of water, or rivers, as fig. 1. and 3. Plate II. palfing them betwixt plain or fluted rollers, as fig. 5. and 6. putting them under falling mills, or falling flocks, as fig. 7. or within wafli-wheels, as fig. 1. and 2. and by many other modes, few of which are equal, and perhaps none superior, to those of which engravings are here given, for doing the business finely, effectually, and with ease to the workmen; the latter point of which is of consequence to be attended to, as it will be universally found in every mechanical employment, that if the least additional labour or care is required from the workmen, however great the effects produced, prejudice or indolence will prevent their doing justice to the invention. Under these circumstances, the wafli-wheel represented in Plate II. fig. 1, 3. 4. is the best machine for general use, and the least liable to occasion damage to the goods. The front of the wafli-wheel represented at fig. 1. is supposed to be eight feet diameter, exclusive of the buckets B, shown by dotted lines on its periphery, which give motion to the water falling into them. This wheel is divided within into four parts or quarters, by the strong arms projecting from the shafts D, to the outer circle; in each of these separate quarters or orboxes, represented by dotted lines, one or more pieces of goods which require washing, are put loosely folded together through one of the holes C, of 12 inches diameter.

Fig. 2. shews the back part of the said wafli-wheel, which is made of solid planks, excepting a grate of latten iron bars marked R, which encircles the wheel underneath the separa- tion boards or bottoms of the buckets; the use of this grate is to admit within the wheel a current of clear water from the pipe Q. When an equal number of piece goods have been introduced into each of the four divisions of the wheel by the holes, C, &c. above mentioned, a current of clear water is permitted to run through a cock from the pipe Q, against the grating R, which allows it to flow freely through into the boxes, or those parts of the wheel which contain the goods; a valve is then opened from the trough P, communicating with a large reverber or stream of water, a sufficient quantity of which is let into the outside buckets from the valve, to give the proper motion to the wafli-wheel containing the goods. In every revolution of the wheel, the goods in each quarter of it are thrown twice, by the simple motion of the wheel, with great force against the arms which form the four divisions of it; viz. once in going down, and once in rising up. The ear can distinguish by the firmness of the found when the wheel moves with proper velocity; and a greater or less quantity of water is allowed to act upon the buckets till that is attained, which usually is when the wheel makes 15 or 16 revolutions in a minute. During the whole time the wheel is in motion, the stream of clear water from the pipe Q flows upon the goods within the wheel in every direction; and the dirty water, produced from thus washing the goods, runs out of the wheels from a number of holes bored through the work-work near the axle, and a few made in the front near the outer circle of the wheel. Fig. 4. shews an end view of the wafli-wheel, about thirty inches wide, with the manner that the bucket-work is made.

It has been found to answer equally well to make use of a greater number of wafli-wheels of a smaller size, as six feet diameter and two feet wide, of which several may be put in motion at once by a large water-wheel, horres, or a steam engine.

The goods, when taken out of the wafli-wheel, are to be unfolded and taken to the river to be freamed, or may be washed from any impurities which may remain in the folds by means of a winc N, fig. 1. and 3. Plate II. where six pieces of cloth are represented in the action of washing in a large wooden back divided into six partitions, to prevent the pieces of goods entangling with each other. Fig. 1. is a side view of the operation, where the dotted lines represent the partitions which separade the goods; I, a trundle wheel, which being put in motion by the cogs, H, of the wafli-wheel, turns the winch on its axle, which winch may at any time be detached from it by the handle M drawing the catch K from the hook, as is shown in the top view fig. 3. where afo is explained, at the letters OOOOOO, the manner in which each piece of goods is kept in its proper place on the winch, by the partitions above mentioned, and by angular slips of wood nailed to the back and partitions.

To affil the drying of the goods after washing, they are usually paffed betwixt two small rollers, commonly called squeezer, represented at fig. 5. where C is a solid wooden frame, containing two wooden rollers, each from 10 to 16 inches long, on an iron axis, which rollers receive a proper pressure by means of the two screwers T acting on an iron bar V, which rests on the ends of the axis of the top roller, as shown by the dotted lines. In proportion as the screwers press the iron bar upon the axle of the top roller, it brings that roller closer in contact with the bottom roller, and occasions more water to be pressed out of the cloth, which is paffed betwixt them loosely drawn together, something like a rope, and the goods therefore require less time in the subfluent drying. In this plate the squeezer are connected with the wafli-wheel above mentioned by a square iron socket, which, as is shown at P, slides occasionally upon the squares of both axes. Fig. 4. shews at S the buckets of the wafli-wheel, on which the water falls to give it motion; II, the cogs round its axle, which work the trundle wheel I.

Fig. 6. Plate II. shews two views of another machine used for cleaning cotton goods, consisting of two flat or grooved
grooved rollers, in the section of which \( a \) represents the tills, or bottom timbers; \( b, b \), the two supports or flide pieces; \( c, c \), one of the upright pieces in which the axes of the rollers are placed; \( d, d \), the two crofs pieces to secure the frame work below; \( e, e \), the two rollers with grooved channels which fit to each other; \( h \), one of the levers, which, from a point \( i \), shewn by dotted lines, preffes on the round end of the axle of the top roller, more or less, according as the weight \( k \) is placed on the lever further from or nearer to the axis of the roller.

In the geometrical elevation of the fame machine, \( e, e \) shews a front view of the two rollers; \( f, f \), the winch to turn it, with a hollow wood handle upon the iron work; \( l, l \), the axis of the upper roller projecting beyond the flide timber, fo as to admit one of the levers \( b \) above mentioned to prefs upon it.

The wet goods, by being pushed backwards and forwards through thele fluted rollers, which are constructed at a much less expense than wath-wheels, are considerably cleaned, but not fo perfectly as by the wath-wheels above mentioned.

Fig. 7. Plate II. explains another mode of cleaning goods, and is applicable to cotton, linen, or woollen goods, but more generally to the two last, as, without great care in its management, it is very apt to tear or damage cotton goods. This machinery is usually termed falling flows or falling hammers. \( N \), the axis of the water-wheel, in which are fixed tappets at \( 2 \), to raise alternately the levers \( 3, 4 \), furnished with large wooden mallets or hammer heads \( 5, 6 \), channelled at the lower part as at \( 8 \). These lever hammers or fallers, work from a pin fixed in the upright at \( 7 \); \( 9 \) is a strong piece of timber hollowed out at \( 10 \), to receive the goods to be cleaned; \( 11 \), a piece of timber fixed a-flant to keep the fallers in their proper place, and direct their motion; \( 12 \), a chain fastened to each faller, serving by means of the hook \( 13 \), to suspend the faller whilst the goods are put in or taken out of the cavity.

When the goods to be cleaned are placed in a loose handle in this cavity, the hammers are let down upon them, and put in motion alternately by the tappets \( 2 \), in rotation, which raise the levers to a certain height, and then quitting them, the hammer heads by their great weight, fall with great force on the goods in the cavity below them; and a current of clear water being admitted upon the goods from a cock above them, the dirty water runs out at a hole in the bottom of the cavity. The falling of the hammers gives a flow circular motion to the goods in the cavity, so as to expel the several parts in rotation to the action of the hammers.

Having noticed the vessels made use of in bleaching, and the general nature of the several operations, we shall now proceed to mention the origin of the several improvements made in this art, and their application to practice.

Under the operation of steeping, we have shewn the method of removing the colouring matters not natural to the vegetable, but acquired in the manufacture, and which may probably be best done by water alone, though sometimes some of the old leys, which have been previously used to other cloth, are employed to this purpose. After the steeping, and indeed after every application of bleaching agents, it should be laid down as a general rule, that the cloth or goods be carefully washed in cold water.

In the old method of bleaching, alkalies, such as pearl or pot-ash, were, after steeping, applied by bucking or boiling; with alternate exposure to the atmosphere.

Alkalies acting so important a part, it is necessary to describe the bleachers' mode of using them, which consists in diffusing them in clean water, and thus forming what is termed an alk.ley. To which the more intelligent bleachers, if he does not make use of American pot-ash, or that of a similar quality, adds \( \frac{1}{4} \) of quicklime, whereby the alkalies are rendered caustic, and their power materially augmented.

But in order that no inconvenience may arise from causticity, after mixture, the whole is allowed to settle, and from the pure liquor thereof the work is afterwards supplied to the bleacher, in drawing it off, reducing it by the addition of water to the different strengths which the goods may require.

The ley being prepared, the bleacher proceeds to apply it to the cloth by bucking or by boiling.

In bucking, the alkaline ley is put into the boiler before described, near to and below which the wooden vessel called a kier, in which the goods are loosely and regularly arranged. After this, a fire is put under the boiler, and beginning whilst the ley is yet cold, it is made to circulate through the cloth in the kier, from which it runs into the iron vessel placed in the ground, from this it is pumped up into the boiler, and again returned upon the cloth in the kier; and this circulation is maintained, and the heat at the same time increased, until the ley be so far concentrated by evaporation, as at last to remain almost wholly in the cloth. This is generally the operation of a day, and the cloth is allowed afterwards to remain thus impregnated with the concentrated ley until next morning.

In boiling in alkaline leys, the mode of which has been before described, the operation is continued from one hour to five or six hours; but it is more tedious and less effectual than bucking, where much buffins is to be done.

After bucking or boiling, the goods were, by the old bleaching processes, exposed for at least a week to the air, before they were again submitted to the action of alkaline leys, and this process alternately repeated many times, till the goods were perfectly white, and the goods at last foured and washed off.

To explain the old method of bleaching more particularly, we shall add the following processes for bleaching linen cloth.

Steep your raw linen cloth in a wood vessel all night, then change the water, and add fresh till you perceive the water to be no longer discoloured by it; rife, wring, and lay it on the ground, and water it if you have opportunity.

When it has thus lain on the grass three or four days, and is dry, take hold of each piece one after the other by the felvedge, and draw the cloth to you, till holding it in the most even manner you can, until you get the further end, with the corners of which further end you tie the cloth very loofely in the middle of the folds, and so lay it in the bucking tub, with the two selvedges upwards.

Thus proceed till you have placed as much cloth in your tub as will cover the bottom of it, taking care not to pack the cloth so close but that your ley may penetrate every part equally. When you have laid the first range of cloth in your tub, pour upon it as much milk-warm ley as will sufficiently foak through all parts of your cloth. Then lay another range in the same manner upon the first, and pour on more ley till that be faked as the other was, and continue fo to do till your bucking tub be full of cloth.

That done, you must begin to buck for twelve hours together, the remainder of your ley having been put in the pan with a flow fire underneath. For the first five hours the ley should not be of a boiling heat; you must from time to time allow some of the ley to run out of the pan upon the cloth in the bucking tub; then increase your fire gradually and flovely, so as in four hours more to bring it to a boil, continuing to put on the ley, and draw it off your cloth in small quantities at a time. When your ley begins to boil, you must let it boil on for three hours, during the while:
time pumping your ley up to the boiler from the reservoir, into which it runs from the cloth, and returning it boiling hot upon the cloth, so that the hot ley may act powerfully and equally upon every part thereof.

After each bucking your cloth must be laid upon the grats in the bleach-field for some days. The bucking, and exposure on the ground, must be repeated about ten times successively, according to the nature of your cloth; it should then be dried up, foured, and washed well in clean water; if the water is rather warm, the better.

Your two first buckings ought to be from a strong caustic ley of pot-ashes; but afterwards you should abate of that strength, let it in small doses into the boil, and wash well in clean water; if the water is rather warm, the better.

This was the management during the summer months; but for four months in winter bleaching was suspended, and the operation being periodically interrupted, and the capital of the manufacturer or proprietors of the goods locked up. Even during the bleaching months, their property was long in preparing for sale; as cotton goods, which required from four to six applications or repetitions of alkaline keys, consumed so many weeks in bleaching, whilst linens, which could not be bleached by less than from twelve to twenty applications, could not be brought in a marketable state to the proprietor hardly in six months.

Such was the state of bleaching till Mr. Scheele, a Swede, and eminent chemist, discovered the properties of oxygenated muriatic acid, procured by mixing manganca and marine acid, in rendering vegetable matter white; and M. Berthollet, the celebrated French chemist, improved this operation, and actually applied its powers in bleaching cotton goods by interposing its action between the different alkaline operations instead of the tedious exposure of the goods to an uncertain atmosphere; the same effect being produced by immersion of the cloth in this acid, as by laying the goods upon the grats in the bleach-field, exposed to air and light.

**Discovery of and Variations in the Mode of procuring the Oxygenated Muriatic Acid.**

By the addition of vitriolic acid to common salt, an elastic aérisiform fluid, or muriatic gas, is disengaged, from which with water a marine acid is produced. The mineral substance manganca, or what the modern chemists call oxyd of manganca, contains what was formerly denominated vital air, pure air, or dephlogisticated air, but now named oxygen. Manganca yields oxygen, when marine acid is added to it, and submitted to distillation; the liquor produced by the contact of this oxygen with water, is the oxygenated marine or muriatic acid discovered by Mr. Scheele, about the year 1774, when he observed and applied its effects in rendering colours vegetable substances of various kinds, and in an art more matter of curiosity than use.

M. Berthollet, in the year 1786, improved the processes of its preparation, applied its power to bleaching or destroying the vegetable colours natural to cloth, the result of which experiments he gave to the world in the year 1789; but, without derogating from the merit of this excellent chemist, it is justice to state, that, previous to any publication by M. Berthollet, Mr. Scheele communicated to M. Kirwan the properties of the dephlogisticated marine acid in whitening vegetable substances, and Mr. Kirwan, then residing in Newman-street, London, suggested to Mr. C. Taylor, the present secretary to the Society of Arts, &c. the probability of its use in bleaching; and a whole piece of calico, in the flate received from the loom, in the spring of 1788, actually bleached white, printed in permanent colours, and produced in the Manchester market ready for sale, having undergone all these operations in less than 48 hours, by the joint efforts of Mr. Cooper, Mr. Baker, and Mr. Taylor, which is perhaps the first entire piece, either in France or England, that fully afoertained the real merits of the new mode of bleaching, and a certainty that it might be generally useful in commerce. This experiment was immediately followed by the establishment of a large bleaching concern by Mr. Cooper, Mr. Baker, and Mr. Horridge, at Ulston, near Bolton, in Lancashire, and before any considerable bleaching work was actually at work in France.

The ingenious Mr. Watt we believe to be the first person who simplified the process of preparing the oxygenated muriatic acid, by means of a mixture of common salt and manganca, previous to the addition of the vitriolic acid. Soon afterwards the operations of the bleacher were further facilitated by the submission of large and commodious stills of lead, ineluding of glass vessels, and both these improvements have since been in general use.

We shall now proceed to mark the various treatment of the oxygenated muriatic acid when obtained, and the different means which have been adopted to fit it for application in bleaching.

It having been found, in the earlier stages of distillation, that common marine acid was produced instead of the dephlogisticated or oxygenated muriatic acid; and from the violence of the ebullition, that manganese itself was sometimes thrown over from the still, M. Berthollet had recourse to an intermediate vessel, containing water, to absorb the marine acid gas, and float other impurities which might contaminate the oxygenated muriatic acid in its passage through this vessel to the receiver.

It ill here be necessary to discriminate the various modes in which the oxygenated muriatic gas has been treated, after passing the intermediate vessel last mentioned.

Mr. Scheele seems generally to have operated with the acid in the flate of gas; but M. Berthollet sought to condense it in water, with which he filled his receiver, or wooden vessel, and which water he kept agitated during the distillation, to accelerate the solution or combination of the gas.

The oxygenated muriatic acid, thus prepared, was drawn from the receiver into klers, or large wooden vessels, where its strength was regulated by the addition of water; after which, the goods to be bleached were immered therein from six to twelve hours, but most frequently during the night; and though these periods may seem short, they were sufficient to allow the cloth to become more white than could be done by any many days exposure to the atmosphere and a hammer's fun, and were then ready for a fresh application of the alkaline keys.

Such was the bleaching liquor of M. Berthollet; but it was found in practice yet defective, as the volatility of the gas precluded its speedy separation from the aqueous solution; a decomposition even by light alone in glass vessels took place; a rapid loss in the strength of the liquor when exposed; and much danger to the health of the workmen from its suffocating quality; at the same time, that in extracting the natural colours of the cloth, it also tended to discharge the colours dyed in the yarn, and were along with the gray cotton an improvement which precluded its use in an infinite variety of British manufactwres.

Similar circumstances probably led some bleachers resident at Javelle, in France, to add a solution of caustic alkali to the water in the receiver, and by this means to remedy many of the defects complained of.

But M. Berthollet continued to recommend his process, considering such substance as impairing the bleaching powers;
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an idea that was generally maintained by the chemists, but contradicted by the bleachers, whose experience taught them, that though the acid thus combined whitened with some-what less rapidity, yet it was not eventually in an inferior extent; and the advantages of preserving the colours dyed in the yarn, compelled them to have recourse to the expensive addition of pot-ashes, in preference to M. Berthollet’s mode.

Here we shall observe, that, according to the doctrine of the modern chemists, the oxygenated muriatic acid bleaches in consequence of yielding to the colouring matter of the cloth that oxygen which, in the distillation, the acid absorbed from the manganese; or, in the language of Stahl and Becher, that the phlogophoric muriatic acid absorbed the colouring matter from the cloth, and was restored to its original state of common marine acid, by regaining that phlogiston which it had, in its preparation, yielded to the manganese.

In the mixture of an alkali with the acid, we have noticed that the bad consequences arising from its volatility have been corrected, and the requisite protection afforded to dyed colours, yet still that its power of whitening cloth was not diminished, nor much more time taken up by the operation; yet, in part from deference to M. Berthollet’s opinion, and in part owing to the expense of the alkali, other means to produce the effect were attempted.

One of the first of these, practised by the bleachers of cotton-hoys, at Nottingham, was to receive the dephtlogophoric muriatic gas into a small air-tight chamber, in the upper part of which the goods were suspended from a frame, whilst at some distance below was water, sometimes impregnated with ley of pot-ash, and sometimes with lime-water, or water mixed with lime. The gas was introduced between the fluid and the goods, amongst which it ascended and mixed; at the same time, by occasionally immersing the goods in the fluid below, it was sought to modify the action of the acid. This was effected by means of a pole, or long lever, connected with the frame on which the goods were suspended, the centre of which pole moved on a twisted wire in a hole in the partition, occasionally flapped with clay, and enabled a person to let the goods down into the fluid, not always however without inconvenience, which occasioned it the name of the Reddam Proof.

Respecting the above process it must be observed, that the acid is much more powerful or active in the state of gas than in any other way; and though the occasional immersion of the goods into the fluid below, corrected in some degree its violent effects, yet the dyed colours disappeared more rapidly in this than in any other process, and the fabric itself was sometimes injured.

The next process attempted by the bleachers, was to put the receiver, filled with water, a quantity of pulverized lime, then the goods themselves, and the whole agitated during the admission of the gas; the consequence of which was, that the goods thus mixed with lime were partially coated with it; and this coating being unequal, the action of the acid upon it was irregular, leaving at the same time the parts uncoated to receive the whole action of the bleaching powers; hence inequality of bleaching ensued, and an insurmountable difficulty in preserving the dyed colours of the goods to be bleached.

Having noticed the imperfections of the two last processes, we shall observe that lime-water, or a pure chemical solution of lime in water, has been sometimes substituted instead of a solution of alkalis in the receiver, but was not, when used in that manner, found to answer so well as the alkaline solution.

That lime-water could produce no valuable effect beyond what was derived from M. Berthollet’s mode, or from simple water, must be evident, when it is considered that water can dissolve no more than 75th part of its weight of lime, a quantity wholly insignificant in neutralizing the oxygenated muriatic acid for the purpose of the bleacher; nor could pulverized lime, merely thrown into the water of the receiver, serve a better purpose, since, from its being specifically heavier than the water, all beyond the quantity in chemical solution subfused and remained nearly useless at the bottom of the receiver.

It has been already mentioned, in noticing the application of alkali keys in bleaching, that the more intelligent bleachers, in preparing their alkali-keys, made use of quicklime to augment the power of the alkali, when such alkali was in a mild state, or, in other words, combined with fixed air, or, as it is now termed, carbonic acid; the attraction of caustic lime for the carbonic acid being stronger than that of ashes. Hence, on caustic lime being thrown into mild alkali, the carbonic acid, by which the ashes were rendered mild, abandons the alkali to combine with the lime, leaving the ashes in their caustic state.

But, although the attraction of carbonic acid is stronger for lime than for alkali, the contrary is the case with the oxygenated muriatic acid, as it abandons lime to combine with ashes, leaving the lime to precipitate.

This observation is made in order to guard the ignorant bleacher from mistakes, who, from having mixed lime with his alkali in the receiver, in the preparation of the oxygenated marine acid, may suppose it acts in a similar manner; but not a particle of lime is acted upon by the acid, whilst ashes remain to combine with it; the only effect of the lime there being, to absorb from the ashes any fixed air they may contain, and to displace the alkali to absorb more of the oxygenated muriatic acid.

Besides the process above mentioned, the bleachers attempted to unite the oxygenated muriatic acid with clay; but as the clay has scarcely any affinity with it, the liquor thus made was little, if at all, superior to that of M. Berthollet.

Such were the attempts made from the year 1786; and the oxygenated muriatic acid combined with pot-ash was in general use by the bleacher until 1798, when Mr. Tennant, of Glasgow, by a well conducted series of experiments, formed what may not improperly be called a new era in bleaching.

Mr. Tennant, having seen so long a period elapse without any material improvement in bleaching, and the alkali, though an expensive ingredient, regarded by the bleachers as an indispensable article to unite with the oxygenated muriatic acid in the receiver, made some trials with the earthsfrontities and barytus, and with succees. Their solubility in water enabled him to combine them with a sufficient quantity of oxygenated muriatic acid to serve the purpoce; but the scarcity of frontities, and the difficulty of separating barytes from the vitriolic acid, with which it is usually found in combination, rendered these discoveries rather objects of curiosity than use.

Mr. Tennant had previously made experiments to combine the oxygenated muriatic acid with lime and lime-water, in the modes above mentioned, but found they were not adequate to the purposes intended; the lime in general remaining at the bottom of the receiver uncombined with the gas, which was the necessary consequence of the lime being specifically heavier than the water, and the gas much lighter; the water, by its interposition between the substances which ought to be combined, namely the oxygenated muriatic gas and the lime, preventing their union.

To bring the pulverized lime into contact with the gas as quickly as possible, it was thought best to divide the receiver into two parts: one contain-
The simplicity of Mr. Tennant's invention of retaining a greater quantity of the oxygenated muriatic gas, by agitation of a sufficiency of lime in the water of the receiver, should be no derogation to its real merit. In substituting lime for pot-ash, an article, not only of foreign produce, but expensive, he has benefited this country, to an extent almost beyond conception; it having been proved upon oath, that by the use of Mr. Tennant's procès, the consumption of ashes at a single bleaching-green has been reduced three thousand pounds kerling in value in one year. A patent for Mr. Tennant's invention was granted him in the year 1798; but as frequently happens in patent cases, on a late trial of its validity, some circumstances arose from which the jury thought themselves justified in severing the patent. We have therefore with considerable pains collected for the public benefit an account of his process, and the most approved mode of putting it in practice, either on a small or an extensive scale, as will be seen by a reference to Plate I. of Bleaching hereafter described.

Mr. Tennant's method of using calcareous earth for neutralizing the muriatic acid gas, and forming the oxy-muriate of lime employed in bleaching is as follows: viz.—In a receiver capable of containing one hundred and forty gallons wine measure, dissolve thirty pounds of common salt, which appear useful only in giving an additional degree of specific gravity to the water, and by that means making it easier to keep the lime to be afterwards added, in suspension; when this salt is dissolved, add sixty pounds of finely powdered quicklime, and into the retort of the apparatus put thirty pounds of powdered manganese, mixed up with thirty pounds of common salt, upon which pour thirty pounds of sulphuric acid (oil of vitriol), previously diluted with its bulk of water, and the usual precaution of futing the vessel being taken, proceed to distillation. When the gas begins to appear, the agitation of the lime and water in the receiver must commence, which should be continued by means of a wooden paddle or rake, or similar contrivance, without intermission, until the materials in the retort, after heat being employed as usual, will not yield any more oxygenated muriatic acid gas. Then the whole should be allowed to remain at rest for two or three hours, when the clear liquor in the receiver, may be drawn off for use, and mixed with water in such proportions as may be found necessary, previous to the immersion of the goods to be bleached.

The principal point of attention in preparing this oxygenated muriate of lime, is, to obtain a complete diffusion of the lime through the mixture, or a mechanical suspension of it in the water during the operation, so that every particle of the lime may, by agitation, be exposed to the action of the gas, instead of merely its upper surface, as had been formerly practiced. By the present means, the oxygenated muriatic acid gas is absorbed with ease, and meets with a sufficient quantity of lime to produce a strong solution of oxygenated muriate of lime, without any uncombined oxygenated muriatic acid; a thing which could not be otherwise effected. The addition of the common salt in the receiver may even be omitted, without prejudice, if the agitation of the lime be well managed.

Plate I., fig. 2. of Bleaching, shews a longitudinal section of a method, which has been practised in Ireland for diluting the oxygenated muriatic acid, and the formation of the oxygenated muriate of lime, a, the asb-hole; δ, the fire under the iron pot or vefsel; e, the aperture through which it is supplied with coals; d, the entrance to the asb-hole, which may be provided with a stopper of burnt clay, or earthen ware, to regulate the draught of the fire, by means of the handle shewn by dotted lines: c, a cald-iron pot or vefsel.
To the buckle, and the leaden cover being inserted into the retort, the agitator, formed of a rod of iron coated with lead, having some arms at its lower end to stir the materials within the retort. At the part where the rod passes through the cover, a leaden collar or cap is folded, to prevent the agitator from descending too low; these two parts are made in a conical form, to fit exactly, and thus prevent the escape of the gas; \( \ell \), a leaden tube or pipe, of three inches bore, to conduct the gas into the tubulated reservoir; \( m \), the leaden reservoir, formed upon the principle of Wolfe's apparatus; the tube, \( \ell \), defends by the first aperture, \( m \), to the bottom of the reservoir, which is about two thirds full of water. The small portion of sulphuric acid, which rises in diffusion, unites with this water; the oxygenated muriatic acid, which travels this water, passes by the pipe, \( m \), into the receiver or condenser, \( \sigma \), which is a wooden vessel, in the midst of which is placed an agitator, \( \rho \), the arms of which raking up the lime cause it to combine with the gas, in proportion as it arises in bubbles from the lower extremity of the leaden pipe, \( \zeta \).

The projections of wood, \( \varphi \varphi \varphi \), fixed to the flanges within the tube, counteract the rotatory motion of the arms of the agitator, and thus avert the combination of the gas with the lime and water. The cover of this tube is fixed close upon the edge of it at \( r \); the cover having a groove in it to unite them tighter together; \( i \), a cock to draw off the liquor, when sufficiently impregnated for use; \( l \), a wooden handle to give motion to the agitator. The joints may be luted with clay, to prevent the escape of the gas.

Fig. 3, and 4, shew Mr. Temnant's improved machinery for preparing the oxymuriated lime. The plate, \( A, A, \) \( A, A, \) is the still, made of lead, of a circular form, having a double flange at the top, which is fitted down into the space of the \\

The vessel, nearly filled with water, in which the leaden retort is placed; \( j, j \), a tripod of iron, on which the retort stands; \( g, g \), the leaden retort, from which the gas to be diluted; \( \alpha, \alpha \), a tunnel of bent lead, through which the oil of vitriol (fulphuric acid) is to be introduced into the retort; \( i, i \), a leaden cover, fitted and luted to the neck of the retort, having three apertures, viz. for the introduction of the tunnel, the rod of the agitator, and the tube of the condenser; \( \ell \), the agitator, formed of a rod of iron coated with lead, having some arms at its lower end to stir the materials within the retort. At the part where the rod passes through the cover, a leaden collar or cap is folded, to prevent the agitator from descending too low; these two parts are made in a conical form, to fit exactly, and thus prevent the escape of the gas; \( \alpha, \alpha \), a leaden tube or pipe, of three inches bore, to conduct the gas into the tubulated reservoir; \( m \), the leaden reservoir, formed upon the principle of Wolfe's apparatus; the tube, \( \ell \), defends by the first aperture, \( m \), to the bottom of the reservoir, which is about two thirds full of water. The small portion of sulphuric acid, which rises in diffusion, unites with this water; the oxygenated muriatic acid, which travels this water, passes by the pipe, \( m \), into the receiver or condenser, \( \sigma \), which is a wooden vessel, in the midst of which is placed an agitator, \( \rho \), the arms of which raking up the lime cause it to combine with the gas, in proportion as it arises in bubbles from the lower extremity of the leaden pipe, \( \zeta \).

The projections of wood, \( \varphi \varphi \varphi \), fixed to the flanges within the tube, counteract the rotatory motion of the arms of the agitator, and thus avert the combination of the gas with the lime and water. The cover of this tube is fixed close upon the edge of it at \( r \); the cover having a groove in it to unite them tighter together; \( i \), a cock to draw off the liquor, when sufficiently impregnated for use; \( l \), a wooden handle to give motion to the agitator. The joints may be luted with clay, to prevent the escape of the gas.

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It will be found that the flanges, filled with water, preclude the necessity of the application of any let, and occasion the operation to be conducted in a clearer, cheaper, and more expeditious mode, than formerly employed.

To describe the proportions of the several articles used in the process of bleaching, would carry us far beyond the bounds which can be allotted in the present publication; we shall, therefore, give the following short but clear account of the mode we recommend to be practiced, to procure the most perfect and durable white on cotton goods, after their being taken from the weaver; which is, first, to wet them thoroughly in cold water; then to allow them to steep in cold, or lukewarm, water, from 12 to 36 hours, according as they are of a strong or thin fabric; then to wash them well in clean cold water; afterwards to bucket or boil them in a calcic alkaline ley; then to wash the goods well in clean water, and afterwards immerse them in diluted oxymuriate of lime, and wash them, repeating the operations of the alkaline ley, and the oxymuriate of lime, till the goods are perfectly white; then to pass the goods through the diluted sulphuric acid, or liquor, washing them well afterwards; lastly, to pass them through a weak ley of pearl-ashes, or of soap, and again through clean water, before drying and finishing them; which finishing of the goods consists in bleaching, blueing, rolling, or calendering them as fashion directs, or the particular market for which they are intended, may require.

It is to be remarked, that the immersion of the goods in the vitriolic lye, and also in the dilute, or soap liquor, is requisite in the end of the process, to prevent a brown tone in which the cloths that are bleached white from the oxygenated muriatic acid, without such precaution, are apt to revert to.

By experiments made at Rouen on cotton thread, with a view to ascertain whether the old or new mode of bleaching was more prejudicial to the fabric, it was proved that the cotton thread bleached in the new mode bore, without breaking, considerably more weight than that bleached in the old method, and was less injured in texture.

In the report on experiments, made by order of the trustees of the linen and hempen manufacturies at Dublin, in the year 1791, with a view to ascertain the comparative merits of several specimens of bleaching liquids sent for their examination, the following mode of bleaching appeared to be the best for linens, and though executed on a small scale, will convey the principal necessary information.

May 11th, 1791. The linen was steeped, in the flate receive from the loom, into water of a heat sufficient to bear the hand, and left in the vefel.

May 16th. The vefel was washed out of the liquor, in which a pretty strong fermentation was observed to have taken place.

May 17th. Finished making a mother-ley, which was made in the following manner: three pounds, and a half of lime were flaked, and mixed with ten gallons of water; fourteen pounds of Danzig pearl-ashes were dissolved in some of this water; then mixed the whole; when it had settled, it
was filtered through a coarse cloth, and the residuum washed repeatedly in four gallons of water, to obtain the whole strength of the alkali; the whole fourteen gallons being then carefully mixed, the ley proved, by very accurate weighing, to contain twelve ounces of caustic alkali salt to the gallon. From this, a ley was made from the work, by adding fix parts of water to one of the mother ley; thus each gallon of the working ley contained one ounce, five drachms, and forty-three grains of caustic alkali.

The boiler being charged with this ley, the linen, which had been spittle washed, was steeped in cold for one hour; then brought up by a very gentle heat to a simmering boil, which continued for three hours; the cloth was then well washed out, and left to steep for that night.

May 18th. Washed out the above linen in fresh water; hung it on cards in the open air, watering it several times in the day.

May 19th. Finding the cloth not to well cleared as could be wished, the boiler was again charged with one of the mother-ley, to four of water, which made the strength two ounces, three drachms, twelve grains of caustic alkali to the gallon. In this was boiled another piece of linen which had been spittle washed as the others; and after it was boiled, it was well washed out.

May 20th. Steeped the whole of the linens for six hours in the liquid prepared with the muriatic acid of the several claimants; afterwards washed them well out, and left them steeping in cold water all night.

May 21st. Washed out all the above linens, and when dry, boiled the whole parcel as before in one of the mother-leys, to five of water, containing two ounces of caustic alkali salt to the gallon; washed them well out of the ley, and left them to steep in pure water till Monday morning, the 23d instant.

May 24th. Steeped the linens for the second time in the oxygenated muriatic acid for six hours; then washed them out, and left them to steep all night in cold water.

May 25th. Having charged the copper with a ley made from one of mother-ley, to fix of water, containing one ounce, five drachms, and forty-three grains of caustic alkali salt to the gallon, the linens were boiled in this for the third time, with a very gentle simmering heat for three hours; they were then washed out, and left to steep.

May 27th. Steeped all the linens for the third time six hours in oxygenated muriatic acid as before; washed them out, and left them in water all night.

May 28th. Immerged all the linens which had been steeped yesterday in the oxygenated muriatic acid, in a weak vitriolic acid for four hours; then washed them out, and left them steeping in cold water.

May 29th. Washed and dried the linen cloth which had been foured yesterday.

June 1st. Boiled all the linen which had been foured in a strong lather of soap.

June 2d. Soured and washed out all the linen which had been boiled in a soap lather yesterday. This operation finished that experiment, in which the above linens were first steeped in water; then boiled in caustic alkali ley, and steeped in oxygenated muriatic acid alternately four times; then foured in vitriolic acid, loaped and foured again.

The above experiments were made, with various others, by Mr. John Arbuthnot, and Mr. John Clarke; and on the trials of the different specimens of the oxygenated muriatic acid, the preference was given to that prepared by Mr. Robert Roe, of Bing's End, on the principle of the jelline liquor mentioned by Mr. Bartholles, by adding a solution of alkali in water in the receiver. Mr. Roe's base preparation, of which was made by adding thirty-eight pounds of quicklime to 1141 lb. of pearl-ash, which made a caustic ley of about nine pounds weight per gallon; he found caustic ley more susceptible of imbibing the gas and retaining it, than mild ley of equal strength.

From the different experiments made to bleach various articles at the above time, the following inferences may be deduced, viz. that allowing cotton or linen, when raw from the loom, to ferment, by steeping in warm water a considerable time before boiling the cloth in an alkaline ley, is of considerable service.

That cloth or yarn is not injured by steeping for fix hours together in oxygenated muriatic acid.

That strong alkaline leys answer better than weak ones, at the commencement of using the leys.

That the white colour of bleached cloth can be better judged of wet than when dry.

That very minute attention in excluding light and air is not absolutely necessary in bleaching with oxygenated muriatic acid.

That parging or clearing yarn or cloth in an alkaline ley, previous to steeping in oxygenated muriatic acid, is absolutely necessary.

That the bleaching liquids made from oxygenated muriatic acid, in which alkaline salt is blended in the composition, require the cloth to be frequently steeped in vitriolic acid; and that the oxygenated muriatic acid made with water only, make more frequent boilings of the cloth in alkaline leys necessary.

That the loss of the cloth in weight, when bleached by the new method, is only one fourth, but by the old method one third.

That steeping in warm water is infinitely better to extract the fynn and dirt from the raw cloths, than boiling them with soap or ley immediately as they come from the loom.

The liquors of the oxygenated muriatic acid, and also those made from the vitriolic acid, may be repeatedly used without detriment, till the whole strength is exhausted.

The cloth or linen, in the acid bleaching liquors, should be moved in the liquor every hour, that every part may be equally cleared.

It is difficult to ascertain the strength of the leys proper for use in bleaching cotton or linen, as the alkalis or athes differ so greatly in purity, and the admixture generally found in them of neutral salts prevents the hydrometer from being a regular test. The common allowance for bleaching liquors in Ireland, is stated by Mr. Higgins, in his ingenious memoir in the Transactions of the Dublin Society, to be for sixty gallons of water, fix pounds of barilla, or four pounds of pot-ash at the leaf, and most bleachers use more than this.

To discover adulterated pot-ash, Mr. Higgins recommends the following method. The specimen of athes being first weighed, is digested for a few minutes on a sand-bath, in twice its weight of water, in a heat of about 212 degrees, and infamnetly stirred. It is then removed from the sand-bath, and before it is cooled to the temperature of the atmosphere, it must be filtered through paper. When all the liquor has passed through the filter, a small quantity of cold water is gradually poured upon the saline residuum or the filter, in order to wash through the whole of the alkali. The undissolved salt sulphate of pot-ash (vitriolated tartar,) remaining on the filter, is afterwards dried and weighed, to ascertain the quantity.

To determine whether any common salt is suspended in the licor which has been filtered, evaporate the clear solution a little on a sand-bath, and let it in a cold place for 24 hours.
hours; at the end of which time, any common salt it contains will be found crystallized in regular cubes at the bottom of the vessel; pour off the clear liquor, and repeat the process, till no more cubic crystals are produced. If it is determined to be very accurate in the analysis, before the common salt (murate of soda) thus procured is weighed, some muratic acid may be poured upon it, in order to take up any of the pure pot-ash which may have adhered during its crystallization. The muratic acid, with such of the alkali as it has dissolved, may be then drained off and thrown away, and the murate of soda dried and weighed.

The sum of the impurities being then subtracted from the weight of the specimen, the quantity of the pure pot-ash is ascertained.

To know what quantity of mere alkali is contained in 100 lbs. of various deposits of different alkaline salts examined by Mr. Kirwan, we shall add the following table, published by him in the Irish Transactions, in 1789.

| One hundred Pounds | Mineral Vapors | Veal. |
|--------------------|----------------|------|-------|
| Crystallized soda   | yielded 2 lbs. | 24   | 16   |
| Sweet Barilla      |                | 3    | 1     |
| Mealy's cuminamara kelp |            | 3    | 1     |
| Do. defalpaborated by fixed air | | 4    | 1     |
| Strangford kelp    |                | 1    | 1     |
| One hundred Pounds | Vegetable Alkali | 62   | 1     |
| Dantzic pearl-ash | yielded 62 lbs. | 62   | 1     |
| Clarke's refined ash |            | 62   | 1     |
| Calphar            |                | 62   | 1     |
| Common raw Irish weed-ash |        | 62   | 1     |
| Do. slightly calcined |            | 62   | 1     |

It is much to be regretted that, considering the immense quantities of pure marine alkali which could be procured at a cheap rate from the East Indies, so little attention should be paid by the East India Company to an article which would be so profitable a branch of commerce to them, and prevent a considerable sum being paid to other nations. The mineral alkali procured from the East Indies, is much purer than what is obtained from Barilla; and a preparation exactly similar in appearance and quality to the Alicant Barilla, may be made with great advantage to the manufacturer, from a mixture of the East India mineral alkali with the common Scotch kelp, for the purposes of the bleacher, the soap-maker, or the Turkey-red dye. To shew the importance of this object, the following table of the imports into Great Britain are annexed for seven years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Barilla</th>
<th>Pearl-Ash</th>
<th>Pearl-Ashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1796</td>
<td>82,273 cwt.</td>
<td>62,829 cwt.</td>
<td>45,390 cwt.</td>
</tr>
<tr>
<td>1797</td>
<td>51,105</td>
<td>57,826</td>
<td>36,974</td>
</tr>
<tr>
<td>1798</td>
<td>122,940</td>
<td>81,482</td>
<td>60,691</td>
</tr>
<tr>
<td>1799</td>
<td>146,603</td>
<td>77,246</td>
<td>54,732</td>
</tr>
<tr>
<td>1800</td>
<td>174,829</td>
<td>133,624</td>
<td>45,401</td>
</tr>
<tr>
<td>1801</td>
<td>63,210</td>
<td>90,223</td>
<td>54,835</td>
</tr>
<tr>
<td>1802</td>
<td>151,796</td>
<td>49,524</td>
<td>64,388</td>
</tr>
</tbody>
</table>

When it is considered that 20 pounds of the mineral alkali brought from India in a powdery state, as it usually is, will, by mere solution in water, yield 100 lbs. of the crystallized soda fold in the shops, it will be seen, that the purchase of the mineral alkali from the East India company, will be an object well deserving the attention of the bleachers and soap-boilers; and far preferable to the use of Spanish kelp or Barilla.

Mr. Kirwan, by means of muratic acid, precipitated the colouring matter from an alkaline ley, saturated with the colouring matter of linen yarn, and found it to possess the following properties: When suffered to dry for some time on a filter, it assumed a dark green colour, and felt somewhat clammy, like moist clay. His observations in the Irish Transactions for 1789, are as follow:

"I took, says he, a small portion of it, and added to it 60 times its weight of boiling water, but not a particle of it was dissolved. The remainder I dried in a sand-heat; it then assumed a shining black colour; became more brittle, but internally remained of a greenish yellow, and weighed one ounce and a half."

"By treating eight quarts more of the faturated ley in the same manner, I obtained a further quantity of the greenish deposit, on which I made the following experiments: 1st. Having digested a portion of it in rectified spirits of wine, it communicated to it a reddish hue, and was, in a great measure, dissolved; but by the effusion of distilled water, the solution became milky, and a white deposit was gradually formed; the black matter dissolved in the same manner.

2d. Neither the green nor the black matter was soluble in oil of turpentine or linseed oil, by a long continued digestion.

3d. The black matter being placed on a red-hot iron, burned with a yellow flame and black smoke, leaving a coaly residuum.

4th. The green matter being put into the vitriolic, marine and nitrous acids, communicated a brownish tinge to the two former, and a greenish to the latter, but did not seem at all diminished.

"Hence, it appears, that the matter extracted by alkalis from linen yarn, is a peculiar sort of rein, different from pure reins only by its insolubility in essential oils, and in this respect resembling lace. I now proceeded to examine the powers of the different alkalis on this substance, eight grains of it being digested in a solution of crystallized mineral alkali, faturated in the temperature of 62°, instantly communicated to the solution a dark brown colour; two measures (each of which would contain eleven pennyweights of water), did not entirely dissolve this substance. Two measures of the mild vegetable alkali dissolved the whole."

"One measure of caustic mineral alkali, whose specific gravity was 1.053, dissolved nearly the whole, leaving only a white residuum."

"One measure of caustic vegetable alkali, whose specific gravity was 1.599, dissolved the whole."

"One measure of liver of sulphur, whose specific gravity was 1.750, dissolved the whole."

"One measure of caustic volatile alkali dissolved also a portion of this matter."

The colouring matter of cotton is much more soluble in alkali, than that of linen; hence the greater facility with which cotton is bleached.

The theory of bleaching vegetable matter, as we have before observed, to have been described by Mr. Delaval, depends on removing the colouring matters, whether natural or accidental, which cover their solid fibrous parts, which are the only parts endowed with a reflectory power. Raw cotton or linen, boiled in a diluted solution of caustic alkali, gives to the liquor a deep brown colour, and destroys its causticity; and fresh portions of clear ley applied a second or third time, will produce a similar effect, but in an inferior degree. If the cotton or linen be now plunged into the oxymuriatic acid, and allowed to remain a short time, they will become white; and if they are then plunged into an alkaline ley, the liquor will again become brown, and lose its causticity.

On saturating either the first or last of the alkaline solutions with an acid, a similar precipitate is obtained from each, of a dark coloured matter, almost insoluble in water, but soluble in caustic alkali.
Hence it appears, that after raw cotton or linen has been acted upon by alkalies for two or three times, they have no further effect upon it, till the cloth comes in contact with oxygen or pure air, either by immersion in the oxygynated muriatic acid, or by exposure to the atmosphere; and it is on account of the speedy action of the acid, in comparison with that of the atmosphere, that the new mode of bleaching is now generally adopted.

M. Belthollet, and the modern chemists suppose, that the colouring matter of linen is composed principally of carbon and hydrogen; and they conclude, that linen, bleached by the oxymuriatic acid, becomes yellow on this principle, that when the oxymuriatic acid renders linen white, a quantity of oxygen has combined with the colouring particles; but that this oxygen gradually enters into a combination with the hydrogen, and forms water which passes off; that the carbon becomes predominant, and the linen, in consequence, assumes a yellow colour.

The old chemists, on the principles of Stahl, would say, that a part of the dephlogisticated marine acid, (oxymuriatic acid,) after the cloth had been acted upon by the alkali, absorbed such phlogistic colouring matter from the cloth, as the alkali had no affinity for; and thus became diluted common marine acid, which has a great attraction to cotton or linen, and, if exposed to a moderate heat, will act upon the texture of the cloth, and render it of a yellow colour.

We notice this circumstance in two different points of view, that the bleacher may be aware of the necessity of applying, in either case, a weak ley of pearl-ash, ultimately after the use of the muriatic acid, to prevent this yellowness from occurring; and also that the reader may comprehend the reasoning of Home, and other persons who have written upon the subject of bleaching, previously to Mr. Scheele's discovery.

To recover the pure alkali from the black coloured leys, which have been used in bleaching, and to render them equally proper for the same purpose, has been for a considerable time a material object in the neighbourhood of Manchester, and practiced with great success.

To effect this, the black or brown strong leys, which have been left after bucking linen, or cotton, yarn, or goods, or furred after wringing them, is put into a mobing [flat or shallow iron pan, made of plate iron, rivetted together. (See Plate 1, fig. 4. 5.) Under this pan a fire is made, and the old leys gradually evaporated, till they become of a consistence nearly resembling tar; the matter is then put into casks, and carried to the reverberatory furnace. Plate 1, fig. 6, 7, where it is ladied or poured into the cavity or bed within the furnace; the fire being then made acts powerfully on the alkaline mafs; gradually dries the water left amongst it; then acts on the colouring matter the ley has abstracted from the cloth, which is partly disphaced in a black, offensive smoke, and partly destroyed by combustion; the calcination of the ashes is assisted from time to time, by taking them up with a long iron rod, in order to expose fresh surfaces to the flame; the heat is continued and increased till the inflammable matter amongst the alkali is disphaced, and the ashes brought to a perfect fluid state; they are then let out by an aperture in the side of the furnace, into an old iron pot put into the ground, and when cold, broken into small pieces for use, being frequently in a purer state than when first imported.

Fig. 4 Plate IV is a section of the evaporating pan for the waffe leys, where A represents a flat iron pan, of an oblong square form, about six inches deep, and of a size proportionate to the quantity of leys to be evaporated: B, the fire-place: C, the ash-hole: D, the flue in which the fire acts under the pan; E, the chimney for the smoke; F, the brick work.

Fig. 5 Plate IV is a bird's eye view of the frame evaporating pan, which is made of plates of beaten iron rivetted together, as shewn in the plan; the fire-place underneath it is marked by dotted lines at B, and the chimney flue at E.

Fig. 6 Plate IV represents a longitudinal section of the reverberatory furnace used in the preparation of ashes, or solid alkaline falls from the old leys after evaporation, to a proper consistence: a the brick work; b, the ash-hole; c, a channel, or passage under the furnace, to admit a free current of air; d, the fire-grate; e, the fire-place; f, the inner part of the furnace; g, the bed of fire-proof brick, on which the matter is calcined; h, the alkaline ley to be calcined; i, a door through which the ley is introduced by an iron handle into the furnace, and through which door the matter, during calcination, is flumed from time to time; k, the passage for the smoke, or chimney, which chimney should be from 20 to 30 feet high; l, the upper part of the furnace, arched like an oven; m, the separation wall between the fire and matter to be fluided or calcined.

Fig. 7 Plate IV represents the upper plan of the furnace, of which fig. 6 is a section: a, the outer walls; b, the ash-hole and draught-hole; c, the iron grate of the fire-place; d, the fire-place; e, the bason in which the keys are calcined; f, the door through which foill coal is thrown into the fire-place; g, an iron tube through which the ashes in fufion flow out of the furnace when sufficiently calcined; h, an iron pot into which the melted ashes flow, and where they are suffered to cool; j, a wall of fire-brick between the fire-place and bason, over which walk the fire paffes; k, the steps leading down to the ash-hole.

It is necessary to remark, that all the interior part of the reverberatory furnace should be made of Welsh brick, or such as will withstand the action of a frong fire; the whole building should be well bound together by iron bars, or cramps. If so constructed, it will last for several years; and when it then want's repair, the ashes, which will be found accumulated in the interstices of the brick-work, will defray the expense of such repairs.

Having shewn the methods generally used in bleaching linen and cotton, we shall notice a process lately discovered by Mr. W. Higginson of Dublin, for using the sulphuret of lime, as a substiute for pot-ash in bleaching. The sulphuret is prepared in the manner following, viz. sulphur or brimstone in fine powder, four pounds; lime well faked and sifted, twenty pounds; water sixteen gallons; these are all to be well mixed, and boiled for about half an hour in an iron vessel, stirring them briskly from time to time. Soon after the agitation of boiling is over, the solution of sulphuret of lime clears, and may be drawn off free from the precipitate, which is considerable, and which rests upon the bottom of the boiler. The liquor, in this state, is nearly of the colour of small beer, but not quite so transparent.

Sixteen gallons of water are afterwards to be poured upon the remaining precipitate in the boiler, in order to separate the whole of the sulphuret from it; the matter is then well agitated, and must, when settled, be drawn off, and mixed with the first liquor; to these again thirty-three gallons more of water may be added, which reduce the liquor to a proper standard for bleaching the cloth.

Though either lime or sulphuret, separately, is very little soluble in water, yet this sulphuret of lime is highly soluble.

This preparation has been applied, in the following manner, to the bleaching of linen in Ireland.
The linen, as it comes from the loom, is charged with the weaver's paffe or dressing, to discharge which, the linen must be steeped in water for about 48 hours, and afterwards taken out and well washed; in order to separate the refuse matter inherent in the vegetable fibre, the linen must then be steeped in the cold solution of sulphuret of lime (prepared as before), for about 12 or 18 hours; then taken out and well washed; when dry, it is to be steeped in the oxymuriate of lime, prepared by Mr. Tennant's process, for 12 or 14 hours, and then washed and dried. This process is to be repeated by fix alternate immersions in each liquor, which are sufficient to whiten the linen.

Though we must confess, that we have some doubts respecting the application of sulphuret of lime to supercede the use of ashes, in bleaching goods intended to remain perfectly white, yet we think it incumbent upon us to state, that for goods previously bleached for dyeing, it possesses advantages over those where alkalies have been used, and which has been actually proved above 30 years ago, by the practice of Mr. Peter Henry Otter, communicated by him to the late Mr. John Wilton, of Alkermere, near Manchester. Mr. Wilton's memory deserves every mark of respect from the cotton manufacturers of England, for his numerous improvements in the bleaching, dyeing, and finishing of cotton goods.

For the use of private families, where the linen is dirtied by perspiration or grime, it will be of great service towards rendering it white, to steep it for some time in a clear liquor, made by mixing one quart of quicklime in ten gallons of water, letting the mixture stand 24 hours, and then using the clear water drawn from the lime. After the linen has been steeped in this liquor, it should be washed as usual, but will require much less soap to be used.

Cotton goods, after bleaching, were formerly dried in the open air, on frames or tenter-rails, or on rails in covered buildings, or in large rooms or stoves heated for the purpose, all which modes were attended with great delay and disadvantages.

These difficulties were removed in 1792 by an apparatus, simple in its construction, easily managed, and of singular use in facilitating the process of the bleacher. For this useful invention the public are indebted to John Burns, esq. of Paisley.

By this discovery the bleacher can erect a drying machine, equally useful at all seasons, and in all weathers, at less than one-tenth of the expense of former contrivances, for doing Linens to the same extent. There is no risk of damage from wind or rain, less chance of injury from servants, owing to the simple manner in which the goods are prepared. They receive a fine gloss during the process of drying, the colour is as well preserved as if dried in the open air, and they cannot be injured by the heat.

A contrivance so obviously beneficial and complete, was soon introduced into general practice in the west of Scotland; and was undoubtedly the claims of the above gentleman to the originality of invention, that the bleachers in the neighbourhood presented him with a handsome donation of silver plate, suitably inscribed, in testimony of their sense of his merit, and as some reward for communicating his plan to the public.

We are more particular in noticing this circumstance, as some other persons have subsequently taken out a patent for the same principle, with a little variation in the construction of the machine, but which alteration has not been found to answer the purpose as expected. We shall therefore now more particularly describe Mr. Burns's apparatus for drying.

**Fig. 1.** Plate III. A is the boiler or iron vessel; B, the safety valve; C, the hollow leaden pipe which conveys the steam from the boiler to the rollers; D, a brass cock hollowed to receive the pivot of the roller, represented in fig. 2, one of which cocks is fixed to the pipe under each roller, and by opening which the steam is admitted into the roller; E represents twelve rollers placed upon the cocks, one of which, next to D, has the cloth upon it in the operation of drying; FFF, the wood frame in which the machinery is placed; GGG, the supports of the leaden steam-pipe, and of the trough H H, which trough is 15 inches broad at top, to receive the water formed by the condened steam as it drops from the bottom of the rollers, E, and to conduct it to I, a small pipe extending from the trough, H, to the funnel, K, which funnel has its lower pipe reaching to within eight inches of the bottom of the boiler, to prevent the steam from issuing out at its mouth, and which funnel keeps the boiler supplied with water to its proper height, or flows when any is wanted, as the steam would arise through it if water should be wanting in the boiler.

**Fig. 2.** Plate III. A shows one of the rollers separate from the frame. It is usually five feet long, one foot in diameter, and made of double tinned sheet iron, and hollow in the middle, for containing the steam; a is the lower pivot of the roller, which is an open tube at the end for receiving the steam conveyed through it from the cock. This pivot rests a foot within the roller, at the under part of the roller; d is a small hole for allowing the condensed steam to drop into the trough placed below it as above-mentioned; b, the other pivot or axis of the roller, which is fastened to the top bar of the frame by a latch, as represented in fig. 2; c, a row of teeth fixed into a small dip of tinned sheet iron, folded to the roller, and thereby elevated to prevent the teeth from tearing the cloth.

**Fig. 3.** Plate III. A machine about three feet in height, for the purpose of lapping the cloth upon the rollers. A, the box in which the cloth is first laid; B, the farthest wooden roller, over which the cloth passes from A, and from thence under the wooden roller C, to the tin roller D, on which it is lapped by turning it with the handle E; F, the cloth passing under the roller C, to the tin roller D, on which, when it is lapped, it is ready to be carried and placed in the drying machine; G, a weight hung from the projection in the frame at H, over the roller B, to keep the cloth sufficiently tight as it passes from the box A, over that roller to be lapped on the drying roller D.

**Fig. 4.** Plate III. A machine for laying the cloth on the tin roller, previous to its being dried. A, a perpendicular frame, in the front of which is placed the tin roller B, with a handle for turning it at C; the cloth D extends from the roller B over the wooden roller E, in a frame F to G, where its other end is attached by a wire run across it to some wrapper or linen cloth, fastened to a board H, fixed below the roller B. L L are upright posts fixed to the outer side of the bottom frame K K, having wooden pegs K K in them, on the side nearest the tin roller B. Rails or rods are laid across from these to similar pegs opposite, to prevent the cloth touching the ground when it is adjusting in the beginning of the operation, and the number of these posts necessary, therefore, are in proportion to the length of the cloth.

At the commencement of lapping the cloth on the tin roller B, the frame F, moveable on small rollers I I, running in grooves on the frame K K, is drawn so far back, that when the cloth is fastened to the wrapper C, one half of the piece reaches to the roller F, the other half lapsed over that roller, reaches to the tin roller B, to which it is then to be fastened. On turning the handle C, the cloth is gradually lapped round
the roller B, the moveable frame F being drawn forward by the cloth; for as the cloth is lapped on the roller B, the frame F is drawn towards it between the uprights LL, and by means of a projecting wood forming an inclined plane fixed at M, on each side, near the top of the frame F, the rails O are raised from the pegs NN, and carried forward on the part M of the frame F, without impeding its progress to the tin roller B, till the wrapper G, to which the cloth is fastened, passes over the roller, and the wire at G, which attaches it to the cloth, is withdrawn, leaving the whole of the cloth to be dried on the tin roller B, which roller is then taken out and placed in the drying frame.

To ascertain the strength of the oxygenated muriatic acid used by the bleachers in France, Mons. Defiozillez made use of a solution of indigo in the vitriolic acid, for which purpose he takes one part of finely pulverized Guatimala indigo, and eight parts of concentrated vitriolic acid, which mixture should be put in a glass vessel, and kept of a gentle heat by standing near the fire or in warm water all night, and repeatedly stirred with a glass rod or tube. When the solution is complete, it is diluted with a thousand parts of water. One measure of this solution is put into a graduated tube of glafs, and oxygenated liquor is added, until the colour of the indigo is completely destroyed, and the strength of the oxygenated liquor is ascertained by its power in discharging the colour.

Mr. Kofe has recommended a method which is better adapted for general use; which is, "to have small measures properly proportioned to each other, and when the liquid is strong, to prevent waste of the indigo liquor prepared as above, and a tedious repetition of measures, let a small measure of the liquor to be tried be put into a measure containing 24 of the same measures of water (it then becomes diluted to a twenty-fifth part); to a measure of this diluted liquor add as many measures of the blue test as it will discharge, which multiplied by 25, gives its whole strength. It will be proper to have a measure of five for the sake of dispfation, in adding the blue test liquor. It is necessary that the experimenter should fit low enough to view his measures horizontally, in order that they may not be overfilled, otherwise he may be deceived.

Great care should be taken in the choice of the indigo and the vitriolic acid employed, for unless the indigo is of the Guatimala kind, or bed East India, and the vitriolic acid highly concentrated and pure, the colour produced will be a greenish brown, instead of a bright blue.

Mr. Chaptal has employed the oxygenated muriatic acid to the purpose of bleaching paper, both by applying it to the rags before worked down, and to the pulp or paper; he also re-dyed the white to prints discoloured by time, by immerging them in the oxygenated muriatic acid liquor, or exposing them to the action of its vapour. And several patents have been granted in this kingdom for bleaching pulp or paper, amongst which Mr. Menfrs. Clement and George Taylor, of Maidstone, in Kent, have obtained one for bleaching the pulp, by inclining it with a liquor of oxygenated muriate of potash, in a vessel resembling a churn, eight feet diameter at the great end, three feet four inches diameter at the little end, and two feet ten inches in the clear. This vessel revolves upon an axis at each end, and the pulp, by this motion, and projecting parts within the vessel, is constantly exposing fresh surfaces to the liquor, till the whole pulp is sufficiently whitened.

Mr. Biggs, of Ipsing, in Sussex, has since obtained a patent for bleaching paper, and re-dyed to white nes damaged or milled paper, by exposing in close wooden vessels, in quantities of six or eight sheets together, on wooden frames placed at small distances from each other, to the action of oxygenated muriatic gas, and after the paper is taken out, pressed, and dried, previous to its being fixed, wetting it in a solution of alum water.

Another method he propofes, is by wetting and foaking the paper in oxygenated muriatic acid liquor, till it is properly bleached; after which it should be well pressed and dried, and wet out in the alum water, as in the other process.

A patent has likewise been granted to Mr. Elias Carpenter, of Bermondsey, London, for a method of bleaching paper in the water leaf or sheet, and fixing it without drying; he uses for this purpose a slow deal box or case, which must be carefully clofed, and capable of containing water or steam within this. The paper to be bleached is to be hung on strips of glafs, about 15 inches long, placed in grooves within the box, about four sheets on each trip; the paper is taken for this purpose when pressed in the packs in its wet state, and when the box is filled and clofed, it is exposed to the action of oxygenated muriatic gas for eight or ten hours, and when sufficiently bleached, fixed with a preparation made from one hundred weight of pieces of skins boiled in water and strained, then fourteen pounds of alum, seven pounds of white vitriol, and one pound of gum arabic added; these ingredients will make size enough for about 50 reams of foolscap paper; the paper when dried and pressed, is finished in the usual way. To prevent the noxious qualities of the gas to the workmen, he directs a solution of pot-ash in water to be placed at the bottom of the bleaching box, to absorb the elastic vapours which would otherwise affect them on opening the box.

Mr. Teumant of Glasgow, subsequent to the patent granted him for his bleaching liquid, has obtained a patent for preparing the oxygenated muriatic of lime in a dry form, by which means bleachers may be cheaply and conveniently supplied with it by him, and face much of the trouble, expense, and hazard which attend the preparation of the former bleaching liquor.

To bleach filk from its natural gummy state, whether in skin or manufactured, it should be put into a thin linen bag, and thrown into a vessel of boiling water in which good white lump has been dissolved; the filk should boil two or three hours in this liquor, and the bag of filk frequently pressed with a stick, and turned, so that the gummy matter may separate from it, and rise to the surface of the liquor, from whence it should be skimmed off, and thrown away; the bag should then be taken out, and if it contains filk goods, they should be well washed in clean cold water, to prepare them for printing or dyeing; but if the bag contains filk in the skin, after it has been well washed in clean water, beaten, and slightly wrung, it may be put the second time into the copper vessel, filled with cold water mixed with soap, and a little indigo blue, if you wish it tinged a little of the blueish hue.

The filk, when taken out of the second water, should be wrung hard with a wooden peg, to press out all the liquor; then flaked, to separate the threads; then suspended on poles, in a clofe room or stowe where sulphur is burnt, which improves the whiteness of the filk.

Woolen cloths or stuffs may be bleached and made white by soap and water; by the vapour of sulphur; or by chalk, indigo, and fulphuric vapour. In the first case, after the stuffs have been cleaned at the fulling mill, they are again worked in warm soap and water, to render them whiter, and afterwards washed in clear water and dried; in this state they are fit for dyeing any light colours.

To destroy or remove the reddish hue arising from boiling printed cottons in madder deceotions, which prevents the printed
printed colours appearing to advantage, the goods are usually boiled for some time in brine and water, and then exposed to the air, by laying them on the grates, and throwing upon them clear water from time to time. Mr. Grimshaw, in the year 1796, obtained a patent for clearing printed goods coming from the madder cooper, by using the grates after brewing malt liquors, instead of brine; the plan he recommends is, that the grates should be previously four, and that three or four bushels thereof, more or less, according to the colour of the cloth, should be put into a cooper of hot water, containing 200 gallons or upwards, and four or five pieces of the printed cotton goods then immersed therein, and worked over a winch backwards and forwards, for ten or fifteen minutes; the pieces are then taken out of the cooper, and well washed in clear water, and laid straight upon the ground for two or three days, till the parts which should be white become clear. The same liquor, with the addition of a few grains, will serve to clear other printed goods, till the whole number wanted to be cleared have been completed; a sufficient quantity of clear water being added to replenish what has been absorbed by the goods, or evaporated in boiling. After either of the operations above-mentioned, the impression of the printed goods in dilute oxalated acid, will answer the purpose of the exposure to the air.


Bleaching of Hair. See Hair.

Bleaching of Wax. See Wax.

BLEAK, in Ichthyology, the English name of CYPRinus ALBURNUS, a species distinguished from the other fishes of its genus by having twenty rays in the anal fin.

The bleak is an abundant fish in many of the English rivers, and in those of the northern countries of Europe in general. The flesh is in some esteem; but it is chiefly taken for the sake of the beautiful silverly scales, which artists make use of in the manufacture of artificial pearl. The credit of this invention is claimed by the French; and it is said that they have arrived at such a degree of perfection in this art, that, independent of the plain silverly hues of the beads in common, they can vary the colour to blue, green, or any other vivid tint that they may desire. The process is very short; the scales are scraped off, washed, and then reduced to a fine powder; this is diluted with water, and introduced into a thin bubble of glas, where it forms an internal coating; the cavity is then filled with wax, through which a hole is bored, and the bead is finished.

Gmelin speaks of this species being from four to ten inches in length; but these do not commonly exceed six inches. This fish is infested in the summer-time with a creature of the vernes tribe, that lives in the intellines, and which oftentimes incresces to such a vast size as to occasion the death of the bleak. Fishes so infested rise to the surface of the water, where they leap and tumble about in the greatest agonies, and in that state are well known to the fishermen by the name of mad bleaks. The white bait taken in the Thames at Blackwall and Greenwich, in the month of July, is believed to be the fry of this species. Vide Dorn. Nov. Brit. Fishes, pl. 18.

BLE.B, a small blitter, or bubble.

Naturalists have observed small purple blebs on all the plants of the hypericum kind. Phil. Trans. N. 224. Thick pieces of glas, fit for large optic glasses, are rarey to be had without blebs. Ibid. N. 4.

BLECHINGLEY, or Bletchingley, in Geography, an ancient and small borough town of Surrey, in England; has had the privilege of returning members to parliament from time immemorial. The right of voting is vested in burghage tenure;

and the lord of the manor's bailiff was the returning officer till 1725, when, by a resolution of the house of commons, he was deprived of that office; and the borough has now the singularity of sending two members to parliament, without a mayor, constable, or any other legal returning officer. Sir Robert Clayton is the proprietor of the borough, and has consequently the power of appointing the representatives. The town occupies the summit and side of a hill, and commands some fine and extensive prospects into Kent, Hampshire, &c. Here was formerly a castle, which was nearly obliterated, and its site is overgrown with coppice wood. An alms-house and tree school are the only charitable foundations of this place. The church is large and handsome; but its spire was destroyed by lightning in 1606, at which time the bells were melted by the electric fire. Fuller's earth and a species of iron-flone are obtained in the vicinity of this town. Blechingley is 21 miles south from London. The town and suburbs within the parish, contain 186 houses, and 1344 inhabitants.


Species, 1. B. occidentalis, South American B. "Fronds pinnate; pinnas lanceolate, opposite, emarginate at the haste." This species rises by a simple undivided stalk to the height of 13 or 18 inches; leaves long and narrow; many pinnas, with two small articles at the haste. A native of the West India islands, and the continent of South America. Introduced here about 1777. 2. B. orientale, Chines B. "Fronds pinnate; pinnas linear, alternate." Fronds three feet long; ripe covered at the haste before, with large grey bristles; the anterior side furred with three longitudinal grooves; leaflets linear-lanceolate, fofe, smooth, entire, inranked at an acute angle, the length of the finger. Found in China by Obbeck, and also in the Society isles. 3. B. australis, Capé B. "Fronds pinnate; pinnas subf nellate, cortate-lanceolate, quite entire, the lowest opposite." Stipes a foot long, green; fronds entire, about the edge ruffled; the barren ones with broader pinnas, truncate at the haste; the fertile, with lanceolate pinnas, heart-shaped at the haste; having two lines of fructification, longitudinal, and dilabt both from the edge and rib. A native of the cape of Good Hope. Introduced here, in 1774, by Mr. F. Maffon. 4. B. virginicum, Virginian B. "Fronds pinnate; pinnas multifid." Having the nature of polypodium flix mas or male fern; fronds smooth; pinnas lanceolate, sessile, semipinnatifid, acute; divisions obsolete, quite entire. A native of Virginia and Carolia. Cultivated, in 1774, by Dr. John Fothergill. 5. B. japonicum, Japone B. "Fronds bipinnatifid; pinnales ovate, obtuse, luteated." Stipes convex at the back and smooth, before flat and ilranked; the whole smooth, flexuose, equal; pinnae oblong, acute, pinnatifid, the lower subpetioolate, the upper sessile; differing from the orientale in having an erect frond and blunt pinnules. A native of Japan. 6. B. radicans, rooted-leaved B. "Fronds bipinnatifid; pinnas lanceolate, crenulated; the lines of fructification interrupted." Frond rooting; pinnas sessile, slightly concurrent at the haste, ferrate with a very fine calyx, acuminate, more veined beneath; the line of fructification is next the nerve, but interrupted as it were by long points. A native of Virginia and Madeira, where it was observed by Koenig. Introduced, in 1779, by Mr. P. Maffon. Propagation and Culture. The fourth species alone will abide the open air in England; the first must be kept in the bark house; the cut require only the protection of the dry house, or conservatory; they are increased by parting the roots. Martyr.
BLEDSOE Lick, in Geography, lies in the state of Tennessee, in America, 32 miles from Big Salt Lick garrison, and 76 from Nashville.

BLEEDA, or Blida, in Geography, a town of Africa, in the kingdom of Algiers, and province of Titeri; is situated in the interior of the country, over-against the mouth of the Ma-Safan, at five leagues distance, under the shade of a ridge of mountains, forming a part of mount Atlas. It is about a mile in circuit, encompassed by a wall chiefly of mud perforated by hornets, and tolerably populous, but without much trade; some of the houses are flat-roofed, and others tiled; it is well-watered, as a branch of an adjacent rivulet may be conducted through every house and garden, and it is surrounded by very fruitful gardens and plantations. As Bleeda and Medea (see Medea) lie nearly in the same meridian, and are situated at a proper distance from the Hamam Meerega, the Aigue Calix Colonia of the ancients, and as their modern and ancient names resemble one another, Dr. Shaw supposes that we may take one for the Bida Colonia, and the other for the Lamida of Ptolemy. That part of mount Atlas which lies between these towns, and reaches as far as mount Jurjura, is inhabited by numerous clans of Kabyles; few of which, from their rugged situation, have been made tributary to the Algerines. The Beni Sala and Haelcol overlook Bleeda, and the rich plains of Mettigah; whilst the Beni Schim and Halefa sometimes descend into the pasture ground, near the banks of the Bissef, or river of fennel, of which a great quantity grows on its banks. Shaw's Travels, p. 36.

BLEEDING, or Blood-letting, in Medicine, a species of evacuation frequently resorted to, as a principal remedy in inflammatory affections, such as pleureisy, peripneumony, phrenitis, quinsy, enteritis, acute rheumatism, &c. and in disorders accompanied with pletora, such as mania, apoplexy, &c. See these disses separately. In all those cases, the earlier this remedy is employed the better, and especially in those inflammatory disorders, such as phrenitis and peripneumony, where, from the great vascularity of the part, the progress of the inflammatory action is extremely rapid and the injury done to organs so essential to life, often becomes irreparable.

Now is the timing of this remedy the only circumstance that requires attention. Other circumstances of equal moment are to be attended to; viz. the quantity of evacuation, and the suddenness with which it is effected. The quantity must be regulated by the degree and seat of inflammatory action, and the age and constitution of the patient. The appearances of the blood, when drawn (see Blood), are commonly regarded as a good criterion for regulating the repetition of the lancet, and the quantity to be taken away each time; but the state of the pulse affords a much better guide; and venesection will often be found necessary in cases where the bloody coat or fisy appearance of the blood is not present in any considerable degree.

The impression produced upon the systen is very different, according as the blood is drawn from a large or a small orifice; i.e. according as it is evacuated suddenly or slowly. The former method is to be practised in all violent inflammations of parts essential to life; such as the brain, the lungs, the stomach, &c. for thus the increased action of the vascular system is subdued almost on the spot; a momentary deliquium is induced (a state the opposite to that in which the morbid condition consists) from which the most beneficial consequences result.

Provided equal quantities of blood be drawn in equal times, it matters not whether it be taken from the right or the left arm; in other words, supposing, in the case of pleurisy, the seat of the pain and inflammation to be in the right side, those symptoms will be as speedily removed by taking away in the whole thirty ounces of blood at three different times from the left arm, as they would be, if the same quantity were taken away from the right arm, in the same number of times, and from orifices equally large; because in both cases, there is the same quantity abstractions from the whole mass of blood, and consequently, from the quantity circulating through the lungs, and their investing membranes; whence the general and local effects in both cases are ultimately the same. Hence the utiity of the doctrine of Revisilson, about which such warm disputes were at one time carried on.

Hitherto we have merely hinted at the general effects produced upon the system by blood-letting. It will now be expected that we should specify what they are. The first and most obvious effect is upon the heart and arteries. The blood is to them a stimulnus; consequently, by withdrawing a quantity of that fluid from them, we withdraw a proportionate quantity of stimulus, and bring down their action so much nearer to their natural standard. The absorbents participate in this change; whence a less impend exhalation takes place. At the same time a diminution of the animal heat succeeds. But the cerebral sytem and the vascular sytem are so intimately connected, that the one cannot be materially affected without producing a corresponding effect upon the other. This is proved by the deliquium and convulsions which succeed to sudden and profuse hemorrhages. Thus it appears that the beneficial effects of blood-letting, is the disorders to which it is applicable, and are owing merely to the abstraction of a quantity of the circulating mass, and consequent abatement of activity in the sanguiferous vessels; but also to the abstraction of a quantity of the fixtures Hemorrhage, and to the impregnations at the same time made upon the lymphatic vessels, and finally upon the sytem of brain and nerves.

From this view of a remedy so powerful and so extensive in its operation, it is easy to perceive what mischievous and even dangerous consequences must result from its abuse. Being the most speedy debilitating of all remedies, it is obvious that what is termed general bleeding ought never to be resorted to, but in cases where the pulse denotes an increased degree of strength, as well as excessive activity. It has been from attending merely to its increased activity, and the accompanying accumulation of heat, without a due diminution of the strength of the pulse in fevers and other disorders supposed to be inflammatory, that so much abuse has been committed in the employment of the lancet. See Fever; under which article, the propriety and impropriety of blood-letting will be fully considered, with remarks on the practice of Ferrelins, Botelus, Sydneyham, Pringle, and other celebrated physicians, who pushed this remedy to an extravagant length.

Although general bleeding be only admissible under the conditions above mentioned, yet topical bleeding may be sometimes employed with good effect in cases of partial inflammation, existing in states of the body where vigour in the sytem at large is wanting; especially when the vessels belonging to some organ essential to life, are obstructed, overloaded, or inflamed.

Bleeding was formerly employed for the purpose of preventing plecthoric and inflammatory conditions of the body. Hence many of the old writers recommend it to persons in health, both in spring and autumn, to pregnant women, &c.; but this practice is very properly discontinued, and other modes of counteracting tendency to over-repletion are adopted in its place; such as a vegetable diet, regular exercise, occasional purging, and the like.

BLEEDING.
BLEEDING.

Bleeding, or Blood-letting, in Surgery, is the artificial extraction of blood from an Artery or Vein, for medicinal purposes. The operation of cutting an artery is named Arteriotomy; that of opening a vein is called Venesection, or Phlebotomy.

The instrument used in this country for bleeding the human subject, is denominated a Lanceet; though a phlebete, or blade, was formerly employed, and is still very commonly used by barbers in England, and even by the bellurgens in Germany. See the Plate of Surgical Instruments. The lanceet, on that occasions is, used single; but where the intention is to puncture numerous small blood vesels at the same instant, rather than any one considerable vein or branch of an artery, surgeons have recourse to an instrument containing many lancets, which is known by the name of Sca.

Lanceets are often applied to a part of the body requiring the local evacuation of blood; and in this case, as well as in facturing, the operation is termed local bleeding, in contradistinction to general blood-letting by the lanceet.

Some nations, especially those which have frequently emerged from a state of barbarism, are accustomed to draw blood by making one or more incisions or punctures at random, with a knife, a bone, a tooth, or a needle. See Acu.

phicures, Phlebotomy, Arteriotomy, Lieches, and Cupping.

The art of bleeding may be traced back to the remotest antiquity, and seems to have been common among the Egyptians, Assyrians, Scythians, &c. at a time when anatomy had never been cultivated. The Greeks boast that Pedasiius, the son of Eculeius, was the first who prac.

tised bleeding, soon after the siege of Troy; but the fact itself is related by only one author (Steph. Byz. in voce Syna), who lived too long afterwards to be credited implicitly. It is therefore much more likely, that bleeding had been performed previously to the time alluded to. Phins, indeed, supposes that physicians first learnt this operation from having observed the hippopomans draw blood by pulling sharp reeds into its body (Hist. Nat. lib. viii. cap. 26.); but this is a very improbable thing, as there is very little analogy between the artificial opening of a vein with a lanceet, and the random wounding of an animal by friction against a broken reed.

We shall, however, not eludage on the history of this practice, but proceed to describe the common modes of opening a vein in several parts of the body, after which we shall treat of Arteriotomy.

When we resolve to perform venesection, we must, besides the instruments required for that operation, have in readiness one or two well-rolled blood-letting bandages, or tapes, from four to eight feet in length, and of two fingers breadth, with pins, or elde needles and thread. Those bandages are, by foreigners, reckoned the belt, which have narrow loops at their ends.

In general, venesection is practised at the bend of the elbow, or upon the foot. When the patient is to be bled at the arm, we place him, with his face towards the light, upon a chair of a moderate height; draw his shirt as high as is necessary above the elbow; let him extend his arm to a certain degree, but not too much; after which, the sur.

geon, in order that the veins may become turgid by checking the circulation, applies a bandage (which is often made of fine red cloth), of the breadth of three or four fingers, twice round the arm above the elbow, with the ends of which, after having previously drawn them moderately tight, he ties a bow with a single knot, at the posterior part of the arm.

Whether this bandage has been properly applied, we know by the circumstance, that the veins become elevated and tumid, whilst the pulsation of the artery at the wrist is distinctly perceptible.

We then choose a vein in the bend of the elbow, which may be done with caution. The upper is the cephalic vein, and this a beginner ought, if possible, always to choose, as little or no danger is to be apprehended from opening it: but it is very seldom to be seen or felt, and commonly is too small. The median vein is most easily seen and felt; but generally the tendon of the biceps muscle is situated under or at the side of it, which we must take great care not to puncture. The inner vein of the arm, or the bafic (which, in the right arm is by some termed the hepatic vein, and in the left the sciatic), is indeed very easy to be seen, and ill more easy to be felt; sometimes, however, it is also very small, or lies too close upon the artery as to render it hazardous to open it.

Some recommend blood-letting upon the back of the hand, although this is an inconvenient place, and, in certain cases, not very safe for the operation. But if it be necessary, we tie a bandage two fingers breadth above the wrist, round the fore-arm; and, in order to raise the vein, let the patient then hold his hand in warm water. The most common vein upon the hand is the cephalic of the thumb, which lies between the bones of the carpus, with which the thumb and the fore-finger are joined. But the common vein upon the hand is the cephalic of the thumb, which lies between the bones of the carpus, with which the thumb and the fore-finger are joined. But the two metacarpal bones with which the middle and the ring fingers are joined, is at present but very rarely opened, and only when no other is to be seen; especially as it does not discharge much blood, is difficult to be tied, and, if cut quite through, forms a thrombus.

In bleeding these veins, the patient must be placed in a somewhat oblique position against the light; so that when the hand is half closed, and laid upon the edge of the vessel, the fingers are directed towards the light, in order that the instrument may throw no shade upon the place of the vein where we intend to open it.

Bleeding at the foot is generally performed upon the vena faphraena, which lies upon the first metatarsal bone, connected with the great toe, running along it and the tarsus, over the inner ankle. Where it lies close upon the ankle, it is inconvenient to open, and we must be very careful we cut through it and injure the periosteum, or even thrust the finger or lancet into the bone itself. If possible, it will be better to open it one, two, or three fingers' breadths farther from the ankle towards the great toe. We may also open a branch far forwards, almost close upon the great toe; and here we are required often to open it with pregnant women who have swelled legs.

The other pretty safe vein upon the foot is the cephalic pedis, that lies between the two tendons which extend the great and the second toes; only we must be cautious not to injure the tendon lying before it. The other veins situated upon the back of the foot should never be opened, but in cases of extreme necessity; for the operation is attended with danger, on account of the contiguous tendons; besides, they do not discharge a sufficient quantity of blood, and they almost always form a thrombus, which a beginner should be careful to avoid.

When we bleed at the foot, the patient should first place the limb in a pool of warm water, in order that the vessels may be seen and felt; and it is also necessary with small veins to apply the red bandage, which, however, in order that the purpose of checking the flow of the blood may be attained, and no inconvenience occasioned, must be applied in the middle of the calf, especially with lean persons, in
BLEEDING.

the same manner as on the arm; but the bow and its knot must not lie upon the tibia.

On the arm, therefore, we choose either the cephalic or the median vein, and, if the tendon lying below it should occasion hesitation, the baffe, especially if this lies more convenient and superficial. When the surgeon, then, has brought his eye to the proper distance from the vein, he wets the point of his middle finger, presses gently with this finger upon the vein at the places where he thinks he can best open it, and accurately marks the place with which he was satisfied in trying by the feel; after which he sufferers the arm to fall down again into the patient's lap. In the same manner he chooses a vein upon the hand.

For blood-letting at the right foot, the patient is placed upon a chair of a moderate height, in the most enlightened part of the room, with his face directed towards the window, and his feet immered in a vessel filled with warm water, so that the water covers all the veins of the whole foot. When therefore the foot is warm, and the veins sufficiently tuid, the surgeon lays hold of the foot with his left hand, and places it with the middle of the sole upon the edge of the vessel which is the most remote from the body, in such a manner, however, that the foot is not extended, but forms a right angle with the leg. With the middle fingers of the right hand he examines those veins which lie the most elevated, and makes, according to the rules before laid down, a scientific selection; but he must always first direct his attention to the vein saphena.

The most convenient attitude for the surgeon is when he kneels down with one knee; as in this position the eye is near to the vein, the position is firm, and can be better supported for the requisite length of time. If any other vein besides the saphena be chosen, the patient is directed to move his toes, whilst we are examining the vein, in order that we may feel how near a tendon may be situated below it; and here the caution should be observed, not to make all the fingers wet, for the warm water diminishes the sense of touch, and consequently renders it indistinct. We therefore use at first only one hand, because, in case of a failure, or from some other cause, we may be under the necessity of taking also the other foot.

The vein may be opened either longitudinally, that is to say, in the direction of its course, or we open it rather obliquely or transversely. The first is the safest, easiest, and most convenient method; but it is admissible only with large veins, and when we foresee that during the operation they will not slip or twist, as it were, out of the way of the instrument. Commonly the veins are opened somewhat obliquely, and in this manner we may generally open the veins on the arm, and in most cases upon the foot. But when the veins are too small, there is reason to apprehend that we may not hit them, or that they will not discharge a sufficient quantity of blood; and when their situation requires it, as is the case with the cephalic of the foot (where it lies over the tendon that elevates the great toe), the orifice must be made quite transversely.

When therefore we have properly examined the vein with the moist finger, we hold the plume in readiness (if we use this instrument); that is to say, we draw up the spring, take it in the right hand, so that the thumb lies upon the siller, the fore-finger upon the bridge, and the middle finger upon the prefifier, exactly over its spring, and the ring finger upon the round part of the bottom plate. With the fore-finger and thumb of the left hand, which are moistened with a little saliva, we move the iron as high up in the groove as we think it necessary to make the orifice deep; and place the box (after having again elevated the arm, or taken the foot or hand out of the water, and supported them, in the manner above described, upon the margin of the vessel) in such a manner upon the skin, that the iron has exactly the proper direction toward the place where the orifice is to be made, and then, by a gentle pressure with the middle finger, let the spring fly loose.

If a vein should be so fat as to render bleeding impracticable, and with such it is at least very difficult to do it on the foot, we may in some measure attain our purpose, if we direct the patient, as he gets out of bed, to hold his foot or hand in warm water; after which the veins will generally become sufficiently perceptible to the eye or touch of an experienced surgeon.

But though the plume is used for blood-letting, especially in Germany, it is however an universally acknowledged truth, that the lancet is the safest and best instrument for the purpose. We run less hazard with it of doing damage, and the surgeon is always able, according as the circumstances require, to make the orifice either small or large. When therefore we let blood with the lancet, we place it so that the handle forms a somewhat acute angle with the blade. The surgeon next lays hold of the limb upon which he is to perform the operation, supposes the right arm, with his left hand; and at the same time presses with the left thumb upon the vein, about two fingers' breadth below the place which is chosen for the orifice: he then takes the lancet between the thumb and fore-finger of the right hand, so that something more of the blade is uncovered than he thinks necessary to introduce. At the same time he lets his hand rest upon the middle, ring, and little finger, which must be placed as conveniently as possible below the vein that is to be opened. He then pushes the point of his lancet carefully through the skin and integuments into the veins, and carries the instrument in an oblique direction a little forward, till the orifice is sufficiently large. But, during the introduction of the lancet, the operator must hold the point as steadily and even as possible, in order that it may not penetrate into the subjacent parts. Should he, however, not be able to depend sufficiently upon the readiness of his hand, he will do well to leave no more of the point of the lancet uncovered than is to penetrate into the vein. The Surgeon having withdrawn his right hand, at the same time removes the thumb of his left hand from the vein, in order that the blood may flow out freely.

If the blood will not flow properly, notwithstanding the vein has been properly hit, either the orifice is too small, or fat perhaps gets into the orifice of the integuments and stops it. The fat is to be pressed back, by froaking with a wet and warm sponge, or by means of an instrument. The impediment, indeed, may lie in the motion of the part; when, for example, the arm is bent obliquely, or the foot is placed in the water, the orifice of the vein may easily be displaced, and some of it be closed by the joint-part of the skin. But, finally, the circumstance may also be occasioned by the vificid confidence of the blood. To this latter cause it is often to be attributed, after the first few minutes; on which account it will be proper to wipe the arm, over the orifice of the vein, with a sponge filled with warm water, and let the hand rest in a somewhat higher situation than the orifice, upon a fitch, which the patient may also turn round, or press firmly with his fingers.

When a sufficient quantity of blood has flowed from the vein (for example, in the arm), and we are to tie it up, we take the sponge, moistened with warm water, in the right hand, the bandage in the left, and the linen compre's between the thumb and middle finger of the same hand; we hold against the vein with the sponge, and with the left hand remove
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Remove the red bandage and hang it over the chair, or the
shoulder of the patient. The assistant takes away the vessel
into which the blood has been received, and the operator
now with a moderate pressure draws the sponge from the
vein towards the hand in a right line with the orifice that
has been made; and it will be proper, whilst he brings the
lips of the wound together with the thumb of his left hand
from the sides, to repeat the wiping with the sponge once
more, in order completely to remove the blood that may
have been left in the orifice.

When the surgeon now seize the vein well closed, he lays
upon it the comprefs, with the fingers of his right hand,
whilst he draws it towards the thumb of the left hand upon
the skin; and when the middle of it is upon the orifice, he
presses it down with the fore and middle fingers of the right
hand, and immediately changes these for the thumb of the left
hand. With the right hand he raises the blood from the
limb, by means of the sponge; after which, he lays the
sponge aside. He then takes the bandage out of his left
hand, lays hold of it with the fore and middle fingers of the
right hand at the inner part of its head, and the thumb upon
the outer, and places it upon the comprefs in such a man-
ner that the fingers of the left hand make way for it, whilst
the two fingers of the right hand continue the pressure
in their place. But, immediately after, there are again changed
for the left, fore, and middle fingers, which now press at
the same time upon the one turn of the bandage and the
comprefs. The right hand carries the bandage crosses-ways
round the arm, whilst the fore fingers of the two hands
always alternate, till the half, when both ends of the ban-
dage are either fewed, tied, or pinned together.

Notwithstanding we have given these very precise direc-
tions, a young surgeon will learn better by seeing the
operation performed by a skilful hand, than by any verbal
instructions.

Tying the vein upon the thumb is performed in the
following manner:—Pressing with the comprefs, which
here must be pretty narrow and thick, is like that performed
on other veins; and therefore, whilst we hold it fast upon
the wound of the vein with the two fore fingers of the left
hand, we let the bandage, (which is rolled upon one head,
an inch in breadth, four feet in length from the end to the
place where it touches the comprefs,) hang about half a foot
down over the back of the hand, obliquely from the wrist
outside; carry the head of the bandage, after pressing
it upon the comprefs with two fingers of the left hand,
through between the thumb and the fore-finger, over the
palm of the hand; and, proceeding over the back of the
hand, cover the end of the bandage; then round the
wrist, again over the back of the hand, under the thumb,
and now round the ball of the thumb; again over the turn
that has just been made across the back of the hand; and after
having once more carried it half round the wrist, pin both
ends together on the back of the hand. We may also apply
this bandage with varied turns. In a familiar manner, with
turns round the little finger, and circular turns round the
wrist, the bandage is applied, when the vein of the face is
opened.

With the veins of the foot, the common bandaging is
made by the Stapes, which, however, sometimes requires
a peculiar method, that every one will easily be able to
adapt according to circumstances. The bandage may be
applied somewhat tighter than upon the arm; however, on
account of the injurious consequences, which may even be
attended with danger, the bandage must not be drawn too
tight; but it will be better some hours after to examine it
again, and if necessary, draw it somewhat tighter. Upon
the whole, it is to be recommended, if possible, in all blood-
letting operations, especially in arteriotomy, that the sur-
gon should see the patient again some hours after; as he
may observe several small inconveniences, which afterwards
frequently occasion unpleasant complaints.

Venoction is more rarely performed upon the frontal
vein, the veins under the tongue, and upon the neck. For
the frontal vein, when it requires to be opened, we apply a
bandage, or a garter or cloth, round the neck, lay the mid-
dle of the bandage upon the back of the neck, carry both
extremities over the throat, and round again to the back of
the neck, where an assistant takes one end in each hand.
This the patient may also perform himself; only then the
middle of the bandage must be applied to the throat, the
two ends carried round the neck till they meet at the
throat again; there the patient holds them with both his
hands, and according to circumstances, draws the bandage
tighter, or relaxes it, so as still to retain sufficient space for
respiration. A still more convenient mode of discharging the
veins of the neck, &c. is to pass the bandage over the fides
of the neck, and under the opposite arm-pits, so as not to
press upon the trachea, which may impede respiration; then
hold the swelled vein down with the thumb or figner of your
left hand, a little below the part allotted for the operation.
The incision is to be made, when the vein is sufficiently
matted, with a lancet.

In order that the blood may not run down upon the face,
we press a card bent crooked under the orifice upon the skin,
and thereby conduct the blood into a vessel. After a suffi-
cient quantity of blood has been discharged, we remove the
bandage from the neck, when the bleeding generally ceases
immediately, and the orifice is secured with sticking plaster,
or, if it should be necessary, with a compress and Discrimen
bandage.

When we have to open a sublingual vein, we must pro-
mote the efflux of the blood, as in bleeding at the forehead
by the application of a cloth under the arms and across the
fides of the neck. The orifice is made with the lancet, and
the incision is continued till it seems large enough. In order
more conveniently to get at it, we hold back the tongue
with a wooden fork, or spatula. We may draw a silk thread
through the wound, in order to draw it from the blood which
here easily congealeth, and at the same time to prevent the
lips of the wound from adhering together, and consequent-
yly to obviate whatever might impede the flow of the
blood. When its flow must be stopped, we take off the
bandage, and let the patient hold some spirit of wine, or
common brandy, in his mouth. If the blood flows more
copiously, we may dispense with the thread, and immedi-
ately remove the bandage from the neck; also, when it is to
be stopped, apply a little alum or agaric to the wound, and
press it down for a time; or apply Lampe’s compress, de-
scribed in L. A. Heur. Kocher’s Anleitung um Ver-
bände, &c. Leipzig, 1796, 8vo. Tab. VI. fig. 5.

To bleed at the external jugular vein, the bandage is
likewise applied round the neck; against the clavicle, and
upon the vein that is to be opened, a thick compress is
placed, and the bandage drawn somewhat together. The
thumb is placed upon the compress which lies upon the vein
and the fore-finger over it, in order to secure it and to stretch
the skin; we then take a pretty large lancet, and with it
open the vein in the ordinary manner; only with this dif-
cernence, that we must introduce it deeper, and make the
external orifice larger. To catch the blood, we make use of a
card, as in bleeding at the forehead. When a sufficient
quantity of blood has been drawn, we remove the bandage,
after which, the lips of the wound generally close sponta-
neously.
nously. But should a bandage be necessary, we may secure a compress upon it by means of two circular turns round the neck. As this bandage, on account of the pressure upon the trachea and vessels, &c. of the neck, is always very troublesome; and the pressure, as it never must be strong, is frequently insufficient; we may most conveniently use the instrument invented by Mr. Chabert for compressing the veins of the neck. In want of it, we must let an affilfent clofe the orifice by pressure with his finger, till the danger of hemorrhage is over.

Some moisten the compresses with brandy, vinegar, &c. and thereby, on account of the irritation, occasion some inconvenience at the orifice of the vein, in which sometimes inflammation, and even a suppuration, is excited. It is better to apply the compress dry, or to flick upon it a piece of gold-beater's skin, whereby the lips of the wound, if they have been well brought together, are retained in that state, so that the burking open of the vein is more effectually prevented.

Easy and insignificant as some young surgeons think the operation of phlebotomy, it nevertheless often requires the greatest accuracy, and is on that account one of the more delicate operations. To a true surgeon, therefore, it is always of importance, and the more so as his honour and reputation are endangered by committing an error in it. Frequently the faults which the patient commits during and after the operation, such as incautious motion of the limb whilst the operation is performing, violent exertion of it, drawing on boots, &c. after blood-letting at the feet, are ascribed to the negligence or ignorance of the surgeon. Infamously also as no operation occurs so frequently as this, and as it is very often endangers the life of a man, or at least an error committed may give rise to such danger; the surgeon must well consider the symptoms which occur in it, and may superinduce more important consequences dangerous to health, in order that he may timely obviate or remove them.

Sometimes there arises, as the most common bad consequence of blood-letting, an inflammation of the external integuments, and of the subjacent cellular sublimation. Sometimes it is chronic, but little painful, suppurates slowly, and produces a circular incised abscess. Sometimes it is more diffused, and has the appearance of an erysipelatous inflammation; sometimes it is violent and acute, and resembles a phlegmon. This generally occurs when the inflammation is a bad one, and rather tears than cuts; when the patient is of a very irritable habit, and much disposed to inflammation; when the requisite precautions for healing the wound by the first intention are neglected, and the arm is suffered to be moved: when the wound is externally rubbed, prefled, &c. The nature of this inflammation cannot be mistaken, and it must be treated like a common wound.

It may sometimes happen, that when the wound of the vein does not soon close, an inflammation of the vein takes place, which however varies with respect to its violence, its extension, and progress. In a milder degree, this inflammation is followed merely by a slight swelling of the vein, and an adhesion of its sides. A violent inflammation induces suppuration. The common method of treatment is the antiphlogistic. As the internal membrane of the veins is continued to the heart, and as inflammations in such membranes spread easily and rapidly, where they are not prevented by an adhesion of the sides of the vein, it is in most cases advisable to produce such an adhesion by the application of external pressure at some distance above the orifice. If, as may very easily happen, such an inflamed vein should pass into suppuration, it would (if known) then be necessary to cut open the vein, in order to prevent the pus from mixing with the circulating fluids.

When a vein has been cut entirely through, the pain is not greater than common, nor does the patient experience any inconvenience whilst the blood is flowing; but a greater or less quantity of it depends under the vein into the adipose membrane, remains there included, and during the first twenty-four hours occasions a tenion. The external orifice of the vein may be displaced from the orifice of the vein, Likewise, when the orifice of the integuments is smaller than that of the vein; when the patient moves the arm too much, in consequence of which some blood is indeed discharged from the wound, but more penetrates between the vein and the skin into the cellular tissue; and when the operation has been absurdly performed where two veins anastomose; from all these causes an effusion of blood may take place, in consequence of which the part acquires a blueish black colour, and sometimes an ecchytyema, sometimes a suppuration, and at other times a thrombus is produced. Although the appearance frequently seems to indicate greater danger than really exists, the speedy application of remedies is nevertheless necessary.

In the first case, cataplasmis, with warm vinegar, wine, and other spirituous or diocients remedies, are serviceable. When such extravasated blood is not again taken up, or when the vessels are inadequate to its re-absorption, on account of its great quantity, an abscefs is generally formed, which must be treated according to the rules of art, and the spirituous remedies laid aside. See Abscess. In the suppuration, we must endeavour to remove the obstructions that may impede the circulation of the blood: these are either external ones, such as too tight bandage; by loosening which the complaint is removed; or they are internal ones, and occasioned by a contraction of the vessels. In a recent suppuration, we may combine the resolvent means above-mentioned with mild astringents; and when the flagellating blood has been again diffolved and removed, we at last apply cold, difficient, and spirituous remedies.

When an aponeurotic part (for example, the facia of the fore-arm) is wounded, the patient sometimes experiences a more violent pain than usual, especially when he moves the limb; and this he feels pretently after the blood-letting has been performed. A compres, moistened with cold Gouland's water, &c. is of service, whilst at the same time the bandage is left applied for three or four days, and the limb kept completely at rest, and wetted many times a day with such remedies. When this is neglected, there very often takes place a serious inflammation, which must be treated according to the antiphlogistic plan. Repose of the limb, which is to be kept in a bent position, and relaxation of the inflamed parts by means of warm emollient applications, are absolutely necessary. As soon as the inflammation abates, it is proper every day to attempt moving the joints, in order to prevent a stiffness. But if the tension and inflammatory symptoms run very high, it may even be requisite to divide the facia completely.

When a nerve is injured, the patient experiences a still more violent pain, which extends itself throughout the whole limb, and the patient is also apt to faint, the muscles of the affected part contract, and the blood sometimes does not flow so freely as usual, although the vein has been well opened. The orifice of the vein does not become violently inflamed, and the pain continues. In order to prevent inflammation and other symptoms, a larger quantity of blood must be let run out, the limb must at length for some days be left completely at rest, and we must take care that the muscles of the part remain as much relaxed as possible. Moreover,
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over, we must try the patient antiphlogistically, prescribe a
spare diet, and also, if the case should require it, administer
cpiates and laxatives. For lesions of the nerves, the applica-
tion of warm spirit of turpentine is commended; but it
would probably be useful only in case the nerve should lie
above, but hardly when under, the vein. Over the orifice
we apply some lint and a mild plaster, and over this and the
whole limb, emollient and cicatrizant cataplasm, with which
anodyne remedies are mixed.

If, notwithstanding this treatment, the symptoms should
become more violent, the lips of the wound acquire a hard-
ness, and become more inflamed, affected with pain and
tumour, with a full and quick pulse, blood must be drawn by
leeches, or at another place by venesection. Instead of the
warm emollient cataplasm and cataplasm, which are
recommended in such cases, Mr. B. Bell extols, from his
own experience, cooling astringent remedies. Preparations
of lead he has found most serviceable. The parts which suffer
the most may be covered alternately with clothes wetted
with a solution of facecharum Saturni, and with pledgets spread
with ceratum Saturni. The fever must also be particularly
attended to, and the above mentioned cooling treatment
continued. When the pains are so violent, that they en-
tirely deprive the patient of sleep and rest, we must use
antimony and opium; but in order that the opium may
prove serviceable, it is administered always in considerible
doses. The limb must be also kept continually at rest, and
in a horizontal posture.

But frequently the first affection is neglected, or improper
remedies are employed, so that opium, and all the remedies
that have been mentioned, have not the smallest effect. This
is particularly to be suppossed, when the nerve is cut in such
a manner, that only a part of its fibres still remains entire, and
there are preternaturally stretched; in which case the whole
body suffers, and the most violent convulsive affections take
place, which indicate the most imminent danger. The only
remedy under these circumstances is the division of the nerve
by a transverse incision above the inflamed part, that is to say,
higher than the orifice of the vein. As the nerve certainly
lies within the breadth of the orifice of the vein, the incision
needs not be long, and it must penetrate only down to the
fascia of the fore-arm, for all its cutaneous branches always lie
on the outside of this fascia.

Mr. Benjamin Bell has given very extraordinary directions
on this subject, which have (most unaccountably) been
transferred by many surgeons in France and Germany: he
observes, among other things, an exter transverse incision to
be made through the original wound, and even down to the
bone! which Mr. Abraham has very properly repro-
duced as "dangerous and unnecessary."

When the branch of an artery has been wounded, the
patient does not feel no pain than usual; but the surgeon
immediately concludes from the colour and spouting of the
blood what fault he has committed. See ANEURISM.

In venesection, a bone may also be injured, chiefly with lean
persons, who generally have very thin veins, especially on the
feet; which though they are very visible, he, however, so
close upon the bones and tendons, that the instrument pases
through and injures the subjacent bone. In most cases, this
only occasions a pain which the patient feels during the op-
eration, and no bad consequences ensue. Frequently the sur-
geon himself would not know it, did he not, on examining
the instrument, that the point is entirely wanting, or at
least bent round, and its edge spoiled. This, however,
applicies only to the case where none of the iron left in it; but
when this happens the case is worse. We may know, that it
has taken place from the cutting blade being wanting, or in
part broken off; from the pain which the patient feels, and
which is generally of a pulsating kind; from the divided
stream of the blood; from the feel with the fingers, when
they are stroked over the orifice of the vein, and from the
rebounding which the surgeon feels in the fingers at the
stroke. If it is not feared very firmly, the stream of blood
generally drives it out, if we draw the orifice gently afunder
with two fingers. But when it is more firmly feared, we
must endeavour to draw it out with a fine pair of forceps as
cautiously as possible, that it may not break in extrac-
ing, and the point remain sticking in the bone. When it has
been usefully extracted, we must endeavour to prevent
the symptoms, such as inflammation, tumour, &c. by wetting
the compresses and the bandages with a diluent lotion,
and afterwards also keep the bandages moistened with such
remedies throughout the day. This accident is only liable
to occur in using the plene.

But the breaking off the blade may also happen with muscu-
lar subjects, and this the surgeon can certainly in general
prevent, by always inspecting his instruments carefully,
and providing them with good blades. The best blades are those
which are very sharp and finely polished, and these are
generally very thin, and consequently most liable to fly off.
Before we use any blade, especially a thin one, we ought always to put
it to the following test. We screwed the new blade into the
plene, and let it fly two or three times without any object
opposed to it. If the blade remains as it should, we are then
so much the more secure against its flying off in blood-letting,
because it has a resistance opposed to it. This precaution
should never be neglected, and the loss of a few blades
should not be regarded, in order to secure ourselves against
the danger to which we are exposed if we neglect it. These
observations and precautions will scarcely be wanted for
English surgeons, who have laid aside that instrument.

Sometimes a lymphatic vesel is wounded; in which case
the patient experiences no extraordinary pain, nor does the
surgeon foresee the injury that is still to arise, and confe-
quently cannot be immediately discovered. After the ban-
daging, the vein heals up, no inflammation is left behind, but
there daily flows out of the orifice of the skin a quantity of
clear peculiar lymph, which continually keeps the dressings
wet. This circumstance often gives the surgeon much
trouble. Here we may apply with advantage, Gouard's
fathom water, or a solution of alum, or mere cold water.
The cure is best completed by means of dry lint, applied
daily once or twice in the form of a tourn. We may also
sprinkle pulverized alum, or apply a strong profusion upon
the vesel; and sometimes we may use the lapis infernalis
with advantage. Mr. Jaeger, however, thinks (Fumfrig,
chirurg. prakt. Cantelen. &c. Frankf. a. M. 1788, p. 3.)
that the cure may most speedily be effected by immediately
promoting suppuration.

It may happen, that in letting blood at the arm a lymph-
atic vesel becomes inflamed; in which case we feel upon
examination, a hard absorbent vesel both above and below
the wound of the vein, which, last, however, is not yet healed,
but generally uninfamed: if the affected limb is used, the
pains become more violent, and sometimes extend themselves
into the axilla, where also the glands swell; generally the
tore arm likewise swells and becomes painful, and at last
absceses take place in different parts. Besides keeping the
affected arm at rest, we must cover the wound with an
emollient ointment, and apply to the hard vesels and tumours,
cataplasm of emollient, cicatrizant, and anodyne remedies,
upon which they are generally discouced. When absceses
have already been formed, they must be opened and healed,
according to the rules of the art. See ABSCESS.
Bleeding.

The most common symptom consequent upon blood-letting is fainting, which, however, is in most cases unattended with danger, especially when it does not arise from a too copious evacuation of blood. It may often be prevented, by keeping the patient engaged in conversation, by letting him take a tispoon of vinegar, or a glass of cold water into his mouth, or sprinkling him and washing his hands and face with it. But if it nevertheless supervenes, we must immediately place the patient in a horizontal position, throw open the chamber window, and apply strong stimulating substanfes, such as volatile alkali, to his nostrils; and when he has come to himself, we may give him a glass of wine, provided it be not contra-indicated by his ill state of health.

When persons who always faint whenever they are bled, and who on this account, however necessary the operation may be for them, always dread it, the bell method of preventing their fainting, is to lay them immediately in a horizontal position, with the head low, and at the same time frequently to stop the discharge of blood by holding the veins. This caution is particularly to be recommended with pregnant women, as faintings and convulsions in them, if they continue too long, may prove very injurious to the fetus, or produce abortion.

We have hitherto confined our remarks to the opening of a vein: it therefore now remains for us to describe the operation of arteriotomy, which is the artificial opening of an artery.

This operation was very frequently practised by the ancients, who, perhaps, from having incorrect ideas of the nature of these blood-vessels, were not always aware of the dangerous consequences which follow from this practice, if injudiciously managed. Those who are desirous of reading a full account of the ancient practice in this branch of surgery, may peruse what Oribasius has collected from Galen and Antyllus; to which they may add the observations of Paulus Aegina, and Prosper Alpinus, the latter of whom describes the operation as it was performed in Egypt.

The supposed advantages of opening an artery, rather than a vein, are first, that the blood flows with greater velocity than from a vein; and therefore affords a larger quantity in a given time; 2dly, that it prevents the accumulation of blood in any local inflammation more effectually, because it intercepts the fluid in its passage towards the affected part; 3dly, that its salutary effects more speedily follow, on this account, than from the operation of phlebotomy; and, therefore, it is preferable in cases of a very urgent nature, such as apoplexy and phrenitis, arising from the pressure of blood upon the brain.

But these advantages are speculative, rather than practical, for the following reasons: 1st, No surgeon who is acquainted with the serious consequences of opening a large branch of an artery, and the difficulty of withdrawing the effusion of blood in many instances, will perform this operation in the same parts of the body, and in the same dauntless manner, as the ancients did. And in opening only very small branches, (suppose of the temporal artery,) it rarely happens that the blood flows rapidly, and never with the same freedom as it does from a large vein: 2dly, That we may sometimes, by this means, intercept the blood as it passes towards an inflamed part is certain; but cutting through the principal artery which conveys the blood; but this advantage is not often obtained, because we dare not divide any considerable ramifications, and there are always more arterial branches than one to supply an important organ: 3dly, We admit, that in certain cases, (in ophthalmia, or inflammation of the eyes, for example,) the good effects of blood-letting by arteriotomy near the affected part, is far more useful than by phlebotomy, in a remote part; but, unfortunately, the surgeon cannot always evacuate a sufficient quantity of blood by this means, on account of the difficulty of finding a suitable branch of an artery, which may be easily as well as safely incised.

Therefore, considering all the disadvantages of this operation, it is now very rarely practised, except in the temples, where the pulsation of a small branch of the artery may be often felt with ease; and there is little or no danger in attempting to divide it. If we do not succeed in our attempts, or do not procure so much blood as is requisite, the operation of phlebotomy may then be had recourse to. It should, however, be mentioned as an undoubted fact, that acute inflammations of the eyes, are more effectually relieved by arteriotomy, (when it properly succeeds,) than by opening a vein in the arm; and that the excretion of four ounces of blood in this way, is as useful as twenty or even thirty ounces taken from the venous ycle.

A arteriotomy is now scarcely ever performed in any other part of the body besides the temple, we shall content ourselves with describing this operation alone. In that situation, the artery lies near enough upon the cranium to be compressed readily, when we wish to stop the current of blood; though, in general, the blood does not flow so freely, as to cause any difficulty in restraining it by moderate pressure.

The patient being placed in a proper light, the operator feels for a pulsating stream in the temple, nearly opposite the outer angle of the eye. When he has discovered it, he endeavours to trace the direction in which it runs; and then he places the two foremost fingers of his left hand upon the artery, leaving a space of about half an inch between them for the place of the incision. The vessell is so small, in general, that it cannot be opened by an oblique, or a longitudinal puncture, as in bleeding the veins of the arm; but must usually be cut across, by a single stroke of the lancet, or scalpel. A lancet is not so convenient as a small knife for this purpose, because its fine point is apt to be broken; and it will be found best to draw the instrument over the artery, instead of endeavouring to strike it with the point, (which Dr. Butler, MR. B. Bell, and others, direct to be done,) as in phlebotomy. It may be convenient to make a little impression with the finger-nail, or with ink, on the exact spot we determine upon for the incision, lest we lose our object in operating; for a surgeon cannot always ensure the division or wound of the artery on his first attempt, especially if the incision be made with timidity, or hesitation.

When a sufficient quantity of blood has flowed, (which does by a florid and plentiful stream,) we close the wound; and apply a long bandage over a very firm, thick compress of linen, in which may be included a piece of coin, or some other hard substance. It is a matter of small importance whether or not we first use an adhesive plaster, except when the bleeding is likely to prove troublesome; but the different modes of arresting arterial hemorrhages, are described under the articles Hemorrhage, Ligature, Systole, and Anaemia.

Frequently it is necessary that the surgeon should make himself acquainted with the state of the blood, and often also it is required of him to pass his opinion upon it. As long as the blood is seen and flows out of the vein, it exhibits a pretty uniform red colour, and has a vivid glary feel; but when it grows cool, it coagulates into a mass varying in colour and density. After some hours, there gradually exudes from this coagulated mass a fluid, which separates the more solid parts from the sides of the vessel, so that it swains in it. This water is called serum, but the coagulated red cake is named crum or coagulamentum.
Good venous blood, exsposed to the air, is of a dark red colour: when it cools, it separates a thin and almost colourless serum, and a thick caje, which has no eruit of a different colour from the blood below it; and of which the serum forms a proportion, amounting to between the third part and the half. Such blood has no preternatural acrimony, or sterile quality; and in it are found all its constituent parts in the proper proportions. From this condition of the healthy blood, we may form a judgment of its preternatural state, if it be materially changed.

When the blood remains so fluid that it will not coagulate, it indicates a deficiency of the gelatinous part, and a great redundance of serum. Such blood is to be found in many fevers, especially in malignant ones, or when the patient is in a very debilitated condition.

If there be too much serum in the blood, dropsey and other similar distempers are to be apprehended; for such discoloured blood always indicates a weakness of the vessels, and of the muscular fibre.

When the serum is yellow, it indicates an obstructed flow of the bile, and its regurgitation into the mals of the circulating fluids.

When the blood has much serum and little of the red part, the blood is overloaded with mucus, and it indicates that a cachectic disease is impending; especially when the serum has various different colours, and the texture of the corpus is very flender.

If the blood has its proper and sufficient redness and fluidity, but at the same time exhibits a gory pellicle, it indicates a superfluity of oelaginous particles.

When it separates and yields a very compact, teneacious, yellow, or buffy surface, it is too thick; and the serum may be at the same time small in quality, it shews a great degree of vascularity and inflammation. This is a fact very generally admitted.

Finally, it is to be observed, that we need not be alarmed when the thicker part of the blood seems to swim in a milky fluid; for it commonly happens, in drawing blood only a few hours after a meal, when it proceeds from the chyle, which, about this time, is imperfectly mixed with the blood.

We have thrown out these few hints for the attention of practical surgeons; but they are by no means to be regarded as complet, or absolutely incontrovertible. There is a great deal of fallacy in judging from the colour, and other visible qualities of the blood; and the moderns have therefore, learnt to give their opinion with diffidence. This subject is considered more at large in a subsequent article. See Blood, and its properties.

**Bleeding a Horse, a frequent operation in the Veterinary Art.** principally intended to diminish the mals of blood, and thereby destroy the too great fulness or over-action of the heart and arteries.

When this operation is intended to affect the general system, the evacuation is usually made from the jugular vein. For the relief of particular parts, the vessels which belong to it, or which are adjacent to it, may be opened; as the vein running down the inside of the fore-arm is commonly opened when it is concealed the shoulder is affected: the necessity of this operation, on account of injuries of this part, is less frequent than is generally imagined; the vein itself in general gives out but little blood, and is very apt to swell after the operation.

Affections of the feet are more frequent, and we have often opened the coronary veins with obvious good effects; by puncturing with a lancet various parts of the coronary ring.
punctured, and then if they are drawn parallel to the direction of the vein, the lancet paling between them, there is less resistance than if they presented themselves transversely to the blade, in which case they must necessarily be divided before the incision can take place.

The jugular vein, after bleeding, often ulcerates, and is attended with the most serious ill congequences, the mischief extending in both directions along the internal surface of the vein, from the point of the incision; the cavity of the vein, or its canal, becomes obliterated, and the irritation occasions a thickening of the cellular membrane surrounding the vein, often to some inches in depth. This, in general, if no external irritation happens, subsides gradually, and disappears without any farther ill congequences, and the vein is totally lost on that side; at other times, an oozing and discharge of thin lymph takes place from the injured part, and a sinus forms, running mostly against the course of the vein up the neck, which, being freely opened, soon heals without further inconvenience. At other times, considerable abscesses form, which are opened without danger, and the thickening of the cellular membrane gradually subsides, and the part heals. Again, in others, the inflammation and ulceration extend along the course of the vein to the head, forming abscesses, which burst and discharge blood, and the ulceration extending to the head becomes fatal.

As prevention is often much easier than cure, to avoid this accident great care should be taken to use a clean instrument, with a smooth, keen edge, not to strike where the vein has been already opened, where very often is an enlargement, and the vein becomes thinner in that part, and more extended, not to include any thing but the skin in pinning it up, and not to leave the pin remaining in the neck too long, to become cankered and rufily, and thus produce irritation. The pin should be elipt as short as possible, to prevent the horse rubbing it out against the manger, &c.

The wound will in general close of itself after a few minutes, if all pressure upon the vein be removed, and sufficiently firm to stop the escape of the blood, if the lips of the orifice are pressed together, without any pinning, and the horse's head, to render it more certain, should be tied rather high to the rack for a short time; where, however, the orifice is very large, or the veins very thin, and disposed to bleed, pinning is the surest practice.

Lancets are often made with a spring, suddenly to plunge them into the vein, and are usefully and commodiously employed for this operation, as they do with great suddennes and effect, more so than the blade or the blow of a blood-thick. The only objection is, that the instrument, from the pressure against the neck required in using it, cannot be so suddenly withdrawn as might be desirable, so that if the horse plunges at the moment he might severely cut himself, which we have seen happen. To prevent the possibility of such an occurrence, the instrument might be provided with a second spring to bring back the lancet to its sheath, or cafe, immediately after the stroke, which would render this instrument very useful and perfect.

**Bleeding from the nose.** See Epistaxis.

**Bleeding from the lungs.** See Hæmoptysis.

**Bleeding by meaure**, is where an account is taken of the quantity as it flows from the vein, in order to put a stop to the flux when the requisite portion is had.

**Bleeding at large**, where the flux is continued without regard to the quantity, till such time as some expected effect is perceived. This method is sometimes used in cases of apoplexies, comata, &c.

**Bleeding of a corpse; Cruentatio cadaveris**, is a phenomenon not said to have frequently happened in the bodies of persons murdered, which, on the touch, or even approach of the murderer, began to bleed at the nose, ears, and other parts; so as formerly to be admitted in England, and still allowed in some other parts, as a sort of detection of the criminal, and proof of the fact. Phil. Trans. N. 77. p. 3212. But this kind of evidence derives its weight merely from superstition and credulity. Numerous instances of these posthumous hemorrhages are given by Wehfer, Lennius, Libavius, and especially Horiatus, who has a discourse expressive on this point, under the title, "De Cruentatione Cadaverum."

**Bleeding** is also applied, in a less proper sense, to a flux of sap out of the wounded vessels of plants, either spontaneously at certain seasons, or by art, and the help of incision.

**BLEGNY, NICOLAS, in Biography, a bold, and, for a time, successful adventurer in medicine, to which he was not regularly educated.** Dionysus fays, he married a midwife, which probably first suggested the idea of becoming a rupture doctor, and of contriving an elastic bandage for that complaint. In 1676, he published at Paris, "L'art de guerir des hernies," 12mo. which has passed through several editions. He used to cauterize the skin of the groin with aqua fortis, or the muriatic acid; when the wound healed, a firm cicatrix was left, which contributed in preventing the further descent of the gut. This remedy was invented by the prior De Cabrerus. He relates several remarkable cures performed by him; in one case, part of the urinary bladder had flipped into the ring. In 1679 he published, "Histoire anatomique d'un enfant, qui a demeuré vingt cinq ans dans le ventre de sa mere," Paris, 12mo. The factus was said to be petrifed. It had acquired, from its long residence in the abdomen, and from the pressure of the neighbouring viscera, an almost cartilaginous hardnes, and retained very little of the human form. About the same time, he commenced the publication of a medical journal, under the title of "Les nouvelles decouvertes, fur toutes les parties de la medicine," of which one number came out every month, and he solicited and obtained assistance from a variety of practitioners; he also contributed considerably to it from his own stock. His name appeared as the editor for the first three years, but was afterwards omitted. Bonet thought the journal deserving of being translated into Latin, and published it at Geneva, in 14to. under the title of "Zodiaet medicinae Gallici." He had before this made himself known by a treatise on the venereal disease; "L'art de guerir les maladies venereennes exploqué par les principes de la nature, et de la mecanique," 12mo. 2 vols. Paris. This was soon republished, translated into German, English, and other languages. He says, the disease was known to the ancients, and even to Moses. It may be brought on, he thinks, by immoderate venery. He objects to the use of altringent injections in the gonorrhoea, and professes to cure the lues, equally certainly, and more safely, with decoctions of guiacum and farfaparilla, than with mercury. He had also published, by order of his sovereign, "Remede Anglais, pour la guerison des sieurs," 1682, 12mo. The principal part of this remedy was the Peruvian bark. He had now attained to very high rank in his profession, having been made, in succession, surgeon to the queen, to Philip duke of Orleans, and, in 1687, one of the physicians in ordinary to the king. Soon after he undertook the management of an hospital, for the reception of the sick poor at Pincourt, but for some immoral practices, encouraged in this place, a report of which was made to the king, he was removed from all his appointments, and
and confined in prison for eight years. Released at length from this confinement, he went and settled at Avignon, where he continued to the time of his death, about the year 1722, being 70 years of age. Haller, Bib. Chirurg. Anat. et Med. Eloy Diet. Hist.

BLEICHERODE, in Geography, a town of Germany, in the circle of Upper Saxony, county of Holsteinen, and lordship of Lorza; though small, it is populous and thriving, has some manufactures, and carries on a good trade; 25 miles north of Mulhausen.

BLEIDENSTATT, a town, or large village of Germany, in the circle of the Upper Rhine, and principality of Naufau-Saatbruck-Ulfingen, leaved on the Aar, 9 miles N.N.W. of Mentz.

BLEISTEIN, or PLEISTAIIN, a town of Germany, in the circle of Bavaria, and principality of Newburg, with an annexed lordship, a fief of the kingdom of Bohemia; 22 miles E. N. E. of Amberg.

BLEKEDA, a small town of Germany, in the circle of Lower Saxony, and principality of Luneburg-Zell, leaved on the Elbe, to which belongs a toll on the river of considerable produce; 20 miles E. N. E. of Luneburg.

BLEMINGEN, called by the Swedes Belking, by the Danes Blegind, and by the inhabitants Blegen, a province of Sweden, bounded on the north by Smoldan, on the south and east by the Baltic, and on the west by Scania, Schonen, or Skoe, is about 180 English miles in length, and about 26 in breadth. It is a mountainous country, but various parts of it are more pleasant than any other provinces of the kingdom. It abounds with forests of oak, beech, pine, and birch trees, and carries on a considerable trade in pot-ash, tar, tallow, hides, leather, beans, deal-boards, and masts. The inhabitants also employ themselves in fithing and hunting. The shallow soil does not admit of much tillage, but the pastures afford the best cheese in Sweden; the cattle, however, are of a smaller size than those of Schonen. This country has several lakes and six principal rivers, which furnish good salmon. Its inlands belonging to this jurisdiction are numerous, and the whole province contains 29 parishes. The clergy are subject to the fee of Lund. As to its political division it consists of four barons, or districts, and its principal town is Carlisflon, which fee.

BLEMISH, in Morfe-dolging. By this term, among the venders of herbes, is understood any appearance by which the horse is disfigured, as broken knees, a blind eye, fears of various kinds, &c. The term blemish, by some, may be extended even to any unhappily natural markings of the horse. These blemishes, however, for the most part, are considered as in no wise of themselves constituting an unsouls.

BLEMISH, a term in Hunting, used when the hounds, or beagles, finding where the chase has been, make a prelfer to enter, but return.

BLEMYES, or BLEMYES, among the Ancient Geographers, a fabulous sort of people, suppos'd without heads; having eyes and mouths on their breasts; said to have inhabited part of Ethiopia, on the borders of Egypt.

Some authors imagine that this fable had its origin in a custom which prevailed among this people of depriving their heads between their shoulders, which they forced upwards, so that their necks were very short, and their heads were concealed partly by their shoulders, and partly by their long and thick hair. To this purpose it is alleged, that the Egyptian, or bearded Bacchus, has the head hunk in his beard. We learn from Vopiscus, that some Blemmyan captives, taken prisoners by Probus, in an expedition against them, about the year of Christ 278, made a very odd appearance at Rome. But at this time they could not be quite unknown at Rome, as some of them had appeared there before, on occasion of Aurelian's triumph. In the time of Diocesian, the number of the Blemmyes, scattered between the island of Meroe and the Red Sea, was very inconsiderable, their disposition was unrivalled, and their weapons rude and offensive; yet, in the public disforders, these barbarians, whom antiquity, shocked with the deformity of their figure, had almost excluded from the human species, preferred to rank themselves among the enemies of Rome. With a view of opposing to the Blemmyes a suitable adversary, Diocesian, in his attack on the rebellious Egyptians, A.D. 296, perused the Nubate, or people of Nubia, to remove from their ancient habitations in the deserts of Libya, and assigned to them an extensive but unprofitable territory above Syene, and the catarracts of the Nile, with the population, that they should ever respect and guard the frontier of the empire. We find, however, that at a subsequent period they sent ambassdors to the court of Constantin. The Blemmyes were subdued by Florus, the lieutenant of Marcian, A.D. 450.

Bochart derives the word Blemmyes from 阝 نفسها, which implies a negation, and 阝 자체, in which sense, the Blemmyes should have been people without brains. See Strabo, l. xvii. p. 1. 172. Pomponius Mola, l. i. c. 4. His words, in describing these savages of Ethiopia, are curious: "Intra, fi credere libet, vix homines magique semiferi; 陞gipiae, et Blemmyes, et Satyri."

BLEMNAU, in Geography, a town of France, in the department of the Yonne, and chief place of a canton in the district of Oigny, containing 1065 persons; the number of people in the canton amounts to 5676; the territory comprises 292 kilometres and 9 communes; 2 leagues N.W. of St. Fargeno.

BLEMCH, in Lex., a fort of tenure of land; as to hold land in blench is by payment of a figer-loaf, a couple of capons, a beamer-hat, &c. if the lame be demanded in the name of blench, i. e. nomine albo frime. See ALBA FRIMA.

BLEMDE, in Mineralogy, called also Black-jack, or pseudo-galena, the native sulphuret of zinc. See Zinc, ores of.

BLEND-METAL-IRON, a coarse sort of iron from the Staffordshire mines, used for making nails and heavy war; in some places also for horse-shoes.

BLEND-COUNTER, a different incident to black-cattle, which comes several ways. 1. From blood. 2. From the yellos, which is a ringedler of all diseases. And 3. From the change of ground; for being hard, it is apt to breed this evil, which if not remedied in six days, will be past help.

BLEMHEIM, in Geography, a village of Germany, in the circle of Bavaria, and principality of Newburg, 2 miles N. E. of Hockfleidt, famous for a victory obtained there by the English and their allies over the French and Bavarians, Aug. 13th 1704. For an account of the battle, see Hockfleidt.

BLEMHEIM, a new town of America, in the state of New York, in Schoharie county, incorporated in 1797.

BLEMNA, or BLENA ( англиа) in Medicine, a term used by Hippocrates, and subsequent medical writers, to denote a phlegm or mucus excreted from the nostril. This sort of excretion occurs not unfrequently in acute diseases, and is generally a favourable symptom.

BLEMNIUS, in Ichthyology, a Linnaean genus of juglar fishes.
Steph. Byz. to have derived its name from one of the companions of Cadmus.

BIEG, in Ichthyology, a name given by the Germans to the fish we call the bleak. See bleak, and alburnus.

BLIESCASTEL, in Geography, a town of France, in the department of Sarthe, and chief place of a canton, in the district of Sarrebourg; containing 1278 inhabitants; the population of the canton includes 16,084 persons; and the territory has 30 communes.

BLIESNA SALIN, a harbour on the coast of Lapland, between the river Kola and Kildytun island.

BLIGH'S Cap, a name given by captain Cook, on account of its shape, to an island in the southern Pacific ocean, near Kerguelen's land, before called by Kerguelen “the island of Rendezvous.” It is a high round rock accessible only to birds. S. lat. 48° 29'. E. long. 68° 40'.

BLIGHT, in Agriculture, a general name for various distempers incident to corn and fruit-trees.

It affects them variously, the whole plant sometimes perishing by it, and sometimes only the leaves and blossoms, which will be scorched and shrivelled up, the rest remaining green and flourishing. Some have supposed, that blights are produced by calmer winds, which, bring vast quantities of insects' eggs along with them from distant places. These being lodged upon the surface of the leaves and flowers of fruit-trees, cause them to shrivel up and perish.

Mr. Knight, however, obverses, that blights are produced by a variety of causes; by insects, by an excess of heat or cold, of drought or moisiture; for these necessarily derange and destroy the delicate organization of the blossoms; but he believes the common opinion, that they arise from some latent noxious quality in the air, or from lightening, to be totally unfounded. The term blight is very frequently used by the gardener and farmer, he remarks, without any definite idea being annexed to it. If the leaves of their trees be eaten by the caterpillar, or contracted by the aphids; if the blossoms fall from the ravages of insects, or without any apparent cause, the trees are equally blighted, and if an eastern wind happen to have blown, the insects, or at least their eggs, whatever be their cause, are supposed to have been brought by it. See ARMS.

The true cause of blights seems to be, continued dry easterly winds for several days together, without the intervention of flowers, or any morning dew, by which the perspiration in the tender blossoms is checked; and if it happen that there is a long continuance of the same weather, it equally affects the tender leaves, whereby their colour is changed, and they wither and decay.

The best remedy, perhaps, is gently to wash and sprinkle over the tree, &c. from time to time, with common water; and if the young shoots seem to be much infected, let them be washed with a woollen cloth, so as to clear them, if possible, from this glutinous matter, that their respiration and perspiration may not be obstrucled. This operation ought to be performed early in the day, that the moisiture may be exhaled before the cold of the night comes on; nor should it be done when the sun shines very hot. Mr. Forsyth recommends their being washed well with urine and soap-fuds, as soon as possible after the diseaee appears.

Another cause of blights in the spring, is laid to be sharp, hoary frosts, which are often succeeded by hot sun-shine in the day-time. This is the most sudden and certain destroyer of fruit that is known. The chief remedy to be depended upon in this case is, that of protecting the fruit-trees during the night-time with nets. This mode, where regularly and correctly performed, has been found highly beneficial.

But, in order to cure this disease, some have advised the burning of wet litter on the windward side of the plants, in order that the smoke of it may be carried to them by the wind, which they suppose will kill and destroy the insects, and thereby cure the mischief. Others direct the use of tobacco-dust, or the washing of the trees with water in which tobacco-flakes have been infused for twelve hours, which they lay will destroy those insects, and recover the plants. Pepper-dust, scattered over the blossoms of fruit-trees, &c. has been recommended as very useful in this case; and there are some who advise the pulling off the leaves that are affected.

What is termed the blight is frequently, however, no more than a debility, or distemper in trees. Mr. Forsyth observes, that "this is the case when trees, against the face wall, and enjoying the same advantages in every respect, differ greatly in their health and vigour, the weak ones appearing to be continually blighted, while the others remain in a flourishing condition. This very great difference, in such circumstances, can be attributed only to the different constitutions of the trees, proceeding from want of proper nourishment, or from some bad qualities in the soil; some distemper in the flock, buds, or scions; or from some mismanagement in the pruning, &c. all of which are productive of distempers in trees, of which they are, with difficulty, cured. If the fault be in the soil, it must, he says, be dug out, and fresh mould put in its place; or, the trees must be taken up, and others, better adapted to the soil, planted in their room. It will be found absolutely necessary always to endeavour to suit the particular sorts of fruit to the nature of the soil; for it is in vain to expect all sorts of fruit to be good in the same soil. If the weaknefs of the tree proceed from an in-bred distemper, it will be advisable to remove it at once, and after renewing the earth, to plant another in its place." But if the weaknefs is brought on by ill management in the pruning, which is frequently the case, he would advise more attention to the method of pruning and training.

Besides this, "there is another sort of blight that sometimes happens pretty late in the spring, as in April or May, which is very destructive to fruit-trees in orchards, and open plantations, and against which we know of no effective remedy. This is what is called a fire-blast, which, in a few hours, hath not only destroyed the fruit and leaves, but often parts of trees; and sometimes entire trees have been killed by it." This, Mr. Forsyth observes, "is generally thought to be occasioned by certain transparent flying vapours, which may sometimes take such form, as to converge the sun's rays in the manner of a burning-glaf, so as to scorch the plants they fall upon; and this, in a greater or lefs degree, in proportion to their convergency. As this generally happens in close plantations, where the vapours from the earth, and the perpiration from the trees, are pent in for want of a free circulation of air to diffuse them, it points out to us the only way, yet known, of guarding against this enemy to fruits; namely, to make choice of a clear healthy situation for kitchen-gardens, orchards, &c. and to plant the trees at such a distance, as to give free admiflion to the air, that it may dispel those vapours before they are formed into such volumes as to occasion their blasts." But blasts may also be occasioned by the reflection of the sun's rays from hollow clouds, which sometimes act as burning mirrors, and occasion excessive heat. Against this there is no remedy yet discovered.

Mr. Marshall, in the Rural Economy of midland counties, observes, that it is well known that this disease is most injurious
Jurious to grain crops in wet seasons; hence, principally, the scarcity and advanced price of wheat after such seasons. It is also remarked to affect the north side of fields, much more than the south, and that the effect is governed by the state of ripeness; consequently, a few days of forwardness may be sufficient to prevent the effect. It is evident, that the forward wheats are least liable to be blighted; for, having paved some certain stage of maturation, they become invulnerable to the attack of this mischievous enemy; at least, no obvious injury is incurred. It is also observable, that no perceptible blight takes place while a dry season continues. The only guard a farmer has against the attack of this secret enemy appears to be that of sowing early.

Blight of corn is called Smut.

BLIGNY-SUR OUCHES, in Geography, a town of France, in the department of the Côte d’Or, and chief place of a canton, in the district of Beaune, 3 leagues N.W. of Beaune, containing 166 inhabitants; the canton contains 6558; and comprehends 265 Kilometres, and 23 communes.

BLIKOOSKOI, a small island in the Frozen sea. N. lat. 17° 30' E. long. 125° 14'.

BLIND. See Blindness.

BLIND, Pork, or Pur, denotes only a great degree of short-sightedness. Phil. Trans., N. 37, p. 713.

BLIND, is also used for occult, or imperceptible. Hence blind rampart, caca volum, among the ancients, was that befit with sharp stakes, concealed by graves or leaves growing over them. Blind testimonies, caca testimonis, those given by absent persons in writing.

BLIND is also used in speaking of bodies without aperture.

Hence.

BLIND wall, caca paries, that without windows. In a like sense we meet with blind chamber, caca cubilcum.

BLIND is also used in speaking of vessels which are not perforated. In this sense the chemists say a blind alembic. A tube is said to be blind, when it is closed a-top. Some anatomists call the third cavity of the ear caca, as having no issue; but it is more usually denominated labyrinth, which see.

BLIND harbour, or Murderer’s bay of Tasman, in Geography, a deep bay at the N.W. part of the southern island of New Zealand, having two small islands near the bottom of it on the west side; 6 leagues to the east of Cape Farewell. In the Military Art, signifies generally every material which serves to cover and protect the besiegers from the fire of the enemy; as wool-packs, sand-bags, earth-baskets, &c. Blinds sometimes consist only of canvas stretched, so as to intercept the view of the garrison from the walls. Sometimes they are planks erected, and in this case are more properly called mantlets. They are also occasionally constructed with a number of baskets or barrels.

More particularly taken, blinds denote wooden frames of four pieces, either round or flat. Two of them are six feet long, and pointed at the extremities; the others, about three or four feet in length, serve as spars, to facade the two former together. These blinds are fixed upright in the ground against the sides of the faps, to hinder the earth from falling in, and to facade fapen upon the upper part. They are likewise of use in covering the faps, and supporting a roof of facade to secure the troops from lones and granades.

Blinds, of another sort are commonly made of oziers, or branches interwoven and laid across between two rows of

fakes, about the height of a man, and four or five feet

Blinds are of essential service at the heads of trenches, or

faps, when they are extended in front towards the glacies;

and when, from the superior elevation of the enemy’s works,

he may overlook, and pour his fire in upon the besiegers.

They are also indispensable, in case the nature of the ground

should oblige the approaches to be carried on in a straight

direction, and the workmen and the guard to be necessarily

exposed to the batteries of the garrison. But in this case,

the faps can only be carried on in the night, as the lots

of men would otherwise prove extremely furious.

BLIND is also sometimes used for Orillon.

BLIND graudo, that which does not light or take fire.

BLIND faith. See Faith.

BLIND gut. See Cecum.

BLIND worm. See Slow-worm.

BLINDING, a species of corporal punishment anciently

instituted on thieves, adulterers, perjurers, and others; and

from which the ancient Christians were not exempt.

Sometimes in vinegar, or barely fleaching vinegar, was poured

to the eyes, till their fballs were confumed; sometimes a

rope was twisted round the head till the eyes flarted out.

Soln. Polyb. c. 4. Lamprid. in Alex. Sec. c. 17. Val.

Max. lib. vi. c. 5. Lastant. de Mort. Perf. c. 10.

In the middle ages, they changed total blindness for a great
darkness, or dimutation of light, which they produced by

holding a red hot iron dib or bafon before the eyes, till their

humours were dried, and their coats harvelled up.

The inhabitants of the city Apollonia executed it on their

watch whom they found asleep. Democritus, according to

Plutarch, Cicero, and A. Cellius, put out his own eyes,

that he might be less disturbed in his mental contemplations,

when thus freed from the disfuction of the objects of light.


c. 71. Cicero Tus. Qu. 5.

BLINDING, olimatio, in the Black Art, denotes a species of

necromancy, whereby a visible body may be concealed, or

hidden by an invisible power. See NECROMANCY.

BLINDING of a captive, signifies erecting a battery against

it, in order to dismount its cannon and render them useless.

BLINDNESS, in Surgery, the privation or want of

sight. This defect may arise from a variety of causes, ex-

citing either in the organ of sight, or in the circumstances

necessary to produce vision. See OPTICS and Eye. Blind-

ness will be complete, when the light is wholly excluded; or

partial, when it is admitted into the eye to imperfectly as to

courte only a confused perception of visible objects. Blind-

ness may again be differentiated into periodical or permanent,

transient or perpetual, natural or accidental, &c.; but these

difficulties do put force to communicate any idea of the

causes of blindness, which are to be slightly mentioned in the

proceed article. For a more particular account of the

causes and remedies of blindness, the reader will consult

the articles which give an account of the doctrine of vision, and

the diseases of the eye.

The ordinary causes of blindness are as follow:

1. In the eyelids and mucus. By a contraction of the eye-
lids; by an elongation of the upper eye-lid; by a paralytic
state, which disables the patient from raising it sufficiently;
by an irregular or defective action in the mucus which are
attached to the eye-ball.

2. In the membranes of the eye. By their opacity, so as to

exclude the rays of light; by their exquisite tenderness, so

as to render vision intolerable; by their blood-veins affuming
a morbid action, and exuding a fluid (luppose pus, for
example) into any of the cavities of the eye.

3. In.
BLINDNESS.

3. In the lumines of the eye. By their defective quantity; by the turbid state, or imperfectly transparent condition, of the humours; by the lops of any one of them, through accident or violence; by an altered figure of the crystalline lenses.

4. In the brain or optic nerve. By compression, producing palsy or GUTTA SERENA (which see); by a state of debility or inertiae in the visual organ, so as to require an uncommonly strong light; by too great sensibility in the optic nerve, enduring but a very feeble impression from the light, and transmitting only a confused perception of visible objects to the mind; by some unknown change in the nervous power, causing depraved vision, and exciting imaginary fencies, which no person can observe besides the patient himself.

It has been generally supposed, that blind persons have not any idea of visible objects, though they can distinguish them by the touch: thus the gentleman mocked by Mr. Cheffelden, though he knew the colours alread in a good light during his blind state; yet when he saw them after recovering, the faint ideas he had of them before, were not sufficient for him to know them by afterwards. Phil. Tran. N. 403. p. 447.

It was even a considerable time before he could remember which was the cat and which the dog, though often informed, without feeling them. Add, that he had no idea of distance; but thought all the objects he saw touched his eyes, as what he felt did his skin.

But a case is recorded by Mr. Ware in the Philosophical Transactions (read to the society June 11th, 1809), which does not accord with Mr. Cheffelden's observation on this subject. It was the case of a young gentleman, who (by a surgical operation) recovered his sight when seven years of age; after having been deprived of it by cataracta, before he was a year old. Mr. Ware gives the following account of the facts in question: "I performed the operation on the left eye, on the 29th of December last, in the presence of Mr. Chamberlayne, F. A. S. Dr. Bradley, of Baliol college, Oxford, and Mr. Platt, surgeon, in London. It is not necessary, in this place, to enter into a description of the operation. It will be sufficient to say, that the child, during its performance, neither uttered an exclamation, nor made the smallest motion, either with his head or hands. The eye was immediately bound up, and no inquiries made on that day with regard to his sight. On the 30th, I found that he had experienced a slight tickling on the preceding evening, but had made no complaint of pain, either in his head or eye. On the 31st, as soon as I entered his chamber, the mother, with much joy, informed me that her child could see.—About an hour before my visit, he was staring near the fire, with a handkerchief tied loosely over his eyes, when he told her that under the handkerchief, which had slipped upward, he could distinguish the tables by the side of which he was sitting; it was about a yard and a half from him; and he observed that it was covered with a green cloth (which was really the cafe), and that it was a little farther off than he was able to reach. No further questions were asked him at that time; as his mother was much alarmed, left the use thus made of his eye might have been premature and injurious. Upon examination, I found that it was not more diminished than the other eye; and the opacity in the pupil did not appear to be much diminished. Delirious, however, to think whether he was able to distinguish objects, I held a little before him, at the distance of about twelve inches, and I told him, after a short hesitation, that it was a piece of paper; that it was square, which he knew by its corners; and that it was longer in one direction than it was in the other. On being desired to point to the corner, he did it with great precision, and readily carried his finger in the line of its longest diameter. I then showed him a small oblong band-box covered with red leather, which he said was red and square, and pointed at once to its four corners. After this, I placed before him an oval silver box, which he said had a shining appearance; and, presentiy afterwards, that it was round, because it had not corners. The observation, however, which appeared to me most remarkable, was that which related to a white stone mug; which he first called a white bason, but, soon after, recollecting himself, said it was a mug, because it had a handle. These experiments did not give him any pain; and they were made in the presence of his mother, and of Mr. Woodford, a clerk in his majesty's treasury. I held the objects at different distances from his eye, and inquired very particularly if he was sensible of any difference in their situation; which he always said he was, informing me, on every change, whether they were brought nearer to, or carried farther from him. I again inquired, both of his mother and himself, whether he had ever, before this time, distinguished by light any fort of object; and I was assured by both that he never had on any occasion; and that when he wished to discover colours, which he could only do when they were very strong, he had always been obliged to hold the coloured object close to his eye, and a little on one side, to avoid the projection of the nose. No further experiments were made on that day. On the 1st of January, I found that his eye continued quite free both from pain and inflammation, and that he felt no uneasiness on the approach of light. I showed him a table knife; which at first he called a spoon, but soon rectified the mistake, giving it the right name, and distinguishing the blade from the handle, by pointing to each as he was defined. He afterwards called a yellow pocket-book by its name, taking notice of the silver lock in the cover. I held my hand before him; which he knew, but could not at first tell the number of my fingers, nor distinguish one of them from another. I then held up his own hand, and defined him to remark the difference between his thumb and fingers; after which he readily pointed out the distinctions in mine also. Dark-coloured and smooth objects, were more agreeable to him than those which were bright and rough. On the 3d of January, he saw, from the drawing room window, a dancing-bear in the street; and distinguished a number of boys that were standing round him, noticing particularly a bundle of cloths which one of them had on his head. On the same evening, I placed him before a looking-glass, and held up his hand after a little time he smiled and said he saw the shadow of his hand, as well as that of his head. He could not then distinguish his features; but, on the following day, his mother having again placed him before the glass, he pointed to his eyes, nose, and mouth, and seemed much gratified with the sight.

Having thus stated the principal observations that were made by Mr. W. I shall now make a short comparison between this statement, and that which is given in the XXXVth volume of the Philosophical Transactions, of Mr. Cheffelden's patient, who was supposed to be born blind, and obtained his sight when he was between thirteen and fourteen years old.

It should be observed, that though Mr. W. was five years younger than Mr. Cheffelden's patient, he was remarkably intelligent, and gave the most direct and satisfactory answers to every question that was put to him. Both of them, also, if not born blind, lost their sight very early, that, as Mr. Cheffelden expresses it, "they had not any recollection of having ever seen."
BLINDNESS.

My first remark is, that, contrary to the experience of Mr. Chefdelen's patient, who is said "to have been so far from making any judgment of distance, that he thought all objects touched his eyes, as what he felt did his skin," Mr. W. distinguished, as soon as he was able to form a table, a yard and a half from him; and proved that he had some accuracy in his idea of distance, by saying, that it was a little further off than his hand could reach. This observation, contrary to the account we have received of Mr. Chefdelen's patient, would have surprised me much more than it did, if I had not previously, in some similar instances, had reason to suspect that children, from whom cataracts had been extracted, had a notion of distance the first moment they were enabled to see. In the instance particularly of a young gentleman from Ireland, fourteen years old, from each of whose eyes he extracted a cataract, in the year 1794, in the presence of Dr. Hamilton, physician to the London hospital, and who, before the operation, assured me, as did his friends, that he never had seen the figure of any object, Dr. Hamilton and myself were much astonished by the facility with which, on the first experiment, he took hold of my hand at different distances, mentioning whether it was brought nearer to, or carried further from him, and conveying his hand to mine in a circular direction, that we might be the better satisfied of the accuracy with which he did it. In this case, however, and in others of a like nature, although the patients had certainly been blind from early infancy, I could not satisfy myself that they had not, before this period, enjoyed a sufficient degree of sight to impress the image of visible objects on their minds, and to give them ideas which could not afterwards be entirely obliterated. In the instance of Mr. W. however, no hallucination of this kind could occur; since, in addition to the declaration of himself and his mother, it was proved by the testimony of the surgeon who examined his eyes in the country, that the cataracts were fully formed before he was a year old. And I beg leave to add further, that on making inquiries of two children, between seven and eight years of age, now under my care, both of whom have been blind from birth, and on whom no operation has yet been performed, I find that the knowledge they have of colours, limited as it is, is sufficient to enable them to tell whether coloured objects he brought nearer to, or carried further from them; for instance, whether they are at the distance of two inches or four inches from their eyes; nor have either of them the slightest suspicion, as is related of Mr. Chefdelen's patient, that coloured objects, when held before them, touch their eyes.

But the judgment which Mr. W. formed of the different distances of objects, was not the only inference in which he differed from Mr. Chefdelen's patient, who, we are informed, "did not know the figure of any thing, nor any one thing from another, however different in shape and magnitude?" for Mr. W. knew and described a letter, not only as white, but also as square, because it had corners; and an oval silver box, not only as shining, but also as round, because it had not corners: he likewise knew, and called by its name, a white rose rug, on the first day he obtained his sight; differing it from a hawn, because it had a handle. These experiments were made in the presence of two respectable persons, as well as myself; and they were several times repeated, to convince us that we could not be mistaken in them. I mention the circumstance, however, with much diffidence, being aware that the observations not only differ from those that are related of Mr. Chefdelen's patient, but appear on the first examination, to subvert a principle in optics, which I believe is commonly and justly admitted, that the senses of sight and feeling have no other connection than that which is formed by experience; and, therefore, that the ideas derived from feeling can have no power to direct the judgment, with respect either to the distance or form of visible objects. It should be recollected, however, that persons who have cataracts in their eyes, are not, in instances of speech, blind, though they are deprived of all useful light. The inferences I have adduced prove, that the knowledge they have of colours is sufficient to give them some idea of distance, even in their darkest state. When, therefore, their sight is cleared by the removal of the opaque crystalline, which intercepts the light, and the colour of objects is thereby made to appear stronger, will it be difficult, or unphilosophical, to conceive that their ideas of distance will be strengthened, and so far extended as to give them a knowledge, even of the outline and figure of those objects with the colour of which they were previously acquainted?" The miseries of blindfolds are feelingly described both by Homer and Milton, in the following impassible passages. The venerable father of epic poetry, who is said, in the person of Democritus the Phocian bard, to have described his own situation, proceeds thus:

"To the god Meth'ippus, who had a great deal of 
Of amber, or red cornelian, I
Of my words and actions, bring the mind to 
"Odyss. 1. o. v. 64.

Dear to the muse, who gave his days to flow
With mighty blessings ming'd with mighty woes,
In clouds and darkness scene'd his visual ray,
Yet gave him power to raise the lofty lay.
"Pope.

In similar strains does Milton bewail his calamity, in his address to light:

"Taught by the heav'nly muse to venture down
The dark defcent, and up to re-ascent,
Though hard and rare; thee I revisit safe,
And feel thy for'v'n'sal vital lamp; but thou
Rev'rit not thefe eyes, that roll in vain
To find thy pierc'ing ray, and find no dawn;
So thick a drop fered hench quench'd their orbs,
Or dim fuffiation fell, Yet not the more
Cafe I to wander, where the muses haunt.
Clear spring, or shady grove, or funny hill,
Smit with the love of sacred song: but chief
Thee, Sion, and the flow'ry brooks beneath,
That was thy hallow'd feet, and warbling flaw.
Nightly I vift; nor fometimes forget
Those other two, equal'd with me in fate,
So were I equal'd with them in renown,
Blind Thamyris and blind Mannides,
And Tiresias and Phineus prophets old:
Then feed on thoughts, that voluntary move
Harmonious numbers: as the wakeful bird
Sings darkling, and in fadefull covert hid
Tunes her nocturnal note. Thus with the year
Seasons return; but not to me returns
Day, or the sweet approach of ev'n or morn,
Or light of vernal bloom, or summer's rofe,
Or flocks, or herds, or human face divine:
But cloud instead, and ever during dark,
Surrounds me, from the cheerful ways of men
Cut off, and for the book of knowledge fair
Presented with an universal blank
Of nature's works to me expung'd and raf'd,
And wildom at one entrance quite shut out."

Paradise Lost. b. iii.

Thus also does he deplore, in the most affecting accents, the misfortune of blindfolds in his "Sampson Agonistes:"

"But chief of all,
'O lofs of sight, of thee I must complain!"

4 11

Blind
BLINDNESS.

Blind among enemies, O worse than chains,
Dread, or beggary, decrepit age.
Light, the prime work of God, to me is extinct,
And all her various objects of delight
Annul'd, which might in part my grief have eas'd,
 Inferior to the vileness now become
Of man or worm. The vileness here excels me:
They creep, yet fee; I dark in light expos'd
To daily fraud, contempt, abuse, and wrong,
Within doors, or without, still as a fool,
In power of others, never in my own;
Scarce half I seem to live, dead more than half.
O dark, dark, dark, amid the blaze of noon,
Irresoverably dark, total eclipse
Without all hope of day!
O first created beam, and thou great word,
Let there be light, and light was over all;
Why am I thus bereaved thy prime decree?
The fun to me is dark,
And silent, as the moon
When he abounds the night,
Hid in her vacant interstinct cave.
Since light to me is necessary to life,
And almost life itself, if it be true
That light is in the soul,
She all in every part; why was the light
To such a tender hand as the eye confin'd?
So obvious, and so easy to be quench'd?
And not, as feeling, throughout all parts diffus'd,
That the might look at will through ev'ry pore?
Then had I not been thus exil'd from light,
As is the land of darknes, yet in light
To live a life half dead, a living death:
And buried; but yet more miserable!
Myself the sepulchre, a moving grave;
Bury'd, yet not exempt
By privilege of death and burial
From worl of other evils, pain, and wrongs,
But made thereby obnoxious more
To all the miseries of life."

The degree in which the calamity of blindness is felt and lamented by those to whom it occurs, may be also partly guessed at by the extasiy into which pertons have fallen on their recovery from it.

Mr. Boyle mentions a gentleman, who, having been blind, and brought to fight at eighteen, was very near going dislimitated with the joy. See a remarkable case of this kind, Toler, N. 55. vol. i. Boyle's Works abr. tom. i. p. 4.

We find various recompenences for blindness, or subtitutes for the use of the ey€, in the wonderful fagacity of many blind persons recited by Zalheus in his "Oculus Artificialis," and others. In one, the defect is furnished by a most excellent gift of remembering what they had seen; in others, by a delicate nose, or the fenfe of smell; in others, by an exquisite touch, or a fenfe of feeling, which they have had in such perfection, that, as it has been said of some, they learned to hear with their eyes; as it may be said of thefe, that they taught themselves to fee with their hands.

Some have been enabled to perform all forts of curious and subtle works in the nicest and moft dexterous manner. Aldrovandus speaks of a sculptor who became blind at twenty years of age, and yet ten years after made a perfect marble statue of Cosimo II. de Medici; and another of clay like Urban Vili. Bartholin tells us of a blind sculptor in Denmark, who distinguished perfectly well, by mere touch, not only all kinds of wood, but all the colours; and F. Grimaldi gives an instance of the like kind; besides the blind organist living in Paris, who is said to have done the fame.


An instance no less extraordinary is mentioned by Dr. Bew in the "Tranflactions of the Manchefter Society." It is that of a perfon, whose name is John Metalf, a native of the neighbourhood of Manchefter, who became blind at early an age as to be altogether unconceivable of light and its various effects. His employment in the younger period of his life was that of a waggoner, and occasionally as a guide in intricate roads during the night, or when the common tracks were covered with snow. Afterwards he became a projector and surveyor of high-ways in difficult and mountainous parts; and in this capacity, with the affiftance of a long flaff, he traversed the roads, ascends precipices, explores valleys, and investigates their several extents, forms, and situations, so as to answer his purpose in the best manner. His plans are defigned, and his estimates formed, with fuch ability and accuracy, that he has been employed in altering moft of the roads over the Peak in Derbyshire, particularly thofe in the vicinity of Buxton, and in constructing a new one between Wilnelflow and Congleton, fo as to form a communication between the great London road, without being obliged to pass over the mountain.

Although blind pertons have occasion, in a variety of respects, to deplore their infelicity, their miserie is in a considerable degree alleviated by advantages peculiar to themselves. They are capable of a more fixed and steady attention to the objects of their mental contemplation, than thofe who are diltracted by the view of a variety of external scenes. Their want of sight naturally leads them to avail themselves of their other organs of corporeal fenfation, and with this view to cultivate and improve them as much as possible. Accordingly they derive relief and affiftance from the quickness of their hearing, the acutenes of their smell, and the fentibily of their touch, which pertons who fee are apt to difregard; and many infancies have occurred, that feem to verify the opinion of Rochefler:—

"That if one feneh should be suppress'd,
It but refines into the reft." To this purpofe we may obferve, that Democritus is faid to have put out his eyes, that he might think more intensely.

Many contrivances have also been devised by the ingenious for supplying the want of fight, and for facilitating those analytical or mechanical operations, which would otherwise perplex the most vigorous mind and the moft re-ative memory. By means of these they have become eminent proficient in various departments of fience. Indeed, there are few sciences in which, with or without mechanical helps, the blind have not distinguished themselves. The cafe of professor Saunderfon at Cambridge is well known. His attainments and performances in the languages, and also as a learner and teacher in the abftract mathematics, in philofophy, and in music, have been truly astonishing; and the account of them appears to be almofl incredible, if it were not almoft attested and confirmed by many other infancies of a fimilar kind, both in ancient and modern times. Cicero mentions it as a fact fearcely credible, with refpect to his master in philofophy, Diotois, that he exercifed himfelf in
BLINDNESS.

In it with greater affulidity after he became blind; and, which he thought next to impossible to be performed without light, that he professed geometry, and described his diagrams so accurately to his scholars, as to enable them to draw every line in its proper situation. Jeron relates a more remarkable instance of Didymus in Alexandria, who, "though blind from his infancy, and therefore ignorant of the letters, appeared to gain a miracle to the world, as not only to learn logic, but geometry also to perfection, which seems (he adds) the most of any thing to require the help of light." Professor Saunders, who was deprived of his sight by the small pox, when he was only twelve months old, seems to have acquired most of his ideas by the sense of feeling; and though he could not distinguish colours by that sense, which, after repeated trials, he said was pretending to impossibilities, yet he was able with the greatest exactness to discriminate the minutest difference of rough and smooth in a surface, or the least defect of polish. In a set of Roman medals he could distinguish the genuine from the false, though they had been counterfeited in such a manner, as to deceive a connoisseur, who judged of them by the eye. His sense of feeling was so acute, that he could perceive the least variation in the state of the air; and it is said, that in a garden where observations were made on the sun, he took notice of every cloud that interrupted the observation, almost as justly as those who could see it. He could tell when anything was held near his face, or when he passed by a tree at no great distance, provided the air was calm, and there was little or no wind: this he did by the different pulse of air upon his face. He possessed a fenangity of hearing to such a degree, that he could distinguish even the fifth part of a note; and by the quickness of this sense he not only discriminated persons with whom he had once conversed so long as to fix in his memory the sound of their voice, but he could judge of the size of a room into which he was introduced, and of his distance from the wall: and if he had ever walked over a pavement in courts, piazzas, &c. which reflected a sound, and was afterwards conducted thither again, he could exactly tell in what part of the walk he was placed, merely by the note which it founded. See Saunderson.

Sculpture and painting are arts which, one would imagine, are of very difficult and almost impracticable attainment to blind persons; and yet instances occur, which shew that they are not excluded from the pleasing creative and extensive regions of fancy. We have known cases in which the form and features of the face have been delineated wholly by the touch, and in which it has been moulded with the utmost exactness. De Piles (Cours de Peint. p. 329.) mentions a blind sculptor, who thus took the likenesses of the duke de Bracciano in a dark cellar, and made a marble statue of king Charles I., with great justness and elegance. However unaccountable it may appear to the abstract philosophers, yet nothing is more certain in fact, than that a blind man may, by the inspiration of the muse, or rather by the efforts of a cultivated genius, exhibit in poetry the most natural images and animated descriptions even of visible objects, without deviously incurring the charge of plagiarism. We need not recur to Homer and Milton for attentions to this fact; they had probably been long acquainted with the visible world before they had loft their sight; and their descriptions might be animated with all the rapture and enthusiasm which originally fired their bosoms, when the grand and delightful objects delineated by them were immediately beheld. We are furnished with instances in which a similar energy and transport of description, at least in a very considerable degree, have been exhibited by those on whose minds visible objects were never impressed, but have been entirely obliterated. Dr. Blacklock affords a fascinating instance of this kind; who, though he had loft his sight before he was six months old, not only made himself master of various languages, Greek, Latin, Italian, and French, but acquired the reputation of an excellent poet, whose performances abound with appropriate images and animated descriptions. See Blacklock.

Another instance, which deserves being recorded, is that of Dr. Henry Moyes in our own country, who, though blind from his infancy, by the ardour and affability of his application, and by the energy of native genius, not only made incredible advances in mechanical operations, in music, and in the languages, but acquired an extensive acquaintance with geometry, optics, algebra, astronomy, chemistry, and all other branches of natural philosophy. From the account of Dr. Moyes, who occasionally read lectures on philosophical chemistry at Manchester, delivered to the Manchester society by Dr. Bev, it appears, that mechanical exercises were the favorite employment of his infant years; and that at a very early age he was so well acquainted with the use of edge-tools, as to be able to construct little windmills, and even a loom. By the found, and the different voices of the persons that were present, he was directed in his judgment of the dimensions of the room in which they were assembled; and in this respect he determined with such a degree of accuracy, as he thought to be sufficient. His memory was originally retentive; so that he was capable of recognizing a person on his first speaking, though he had not been in company with him for two years. He determined with surprizing exactness the stature of those with whom he conversed, by the direction of their voices; and he made tolerable conjectures concerning their dispositions, by the manner in which they conducted their conversation. His eyes, though he never recollected his having seen, were not totally insensible to intense light; but the rays refracted through a prism, when sufficiently vivid, produced distinguishable effects upon them. The red produced a disagreeable sensation, which he compared to the touch of a flaw. As the colours declined in violence, the hardening subsided, until the green afforded a sensation that was highly pleasing to him, and which he described as conveying an idea similar to that which he gained by running his hand over smooth polished surfaces. Such surfaces, musing and dreams, and gentle declivities, were the figures by which he expressed his ideas of beauty; rugged rocks, irregular points, and boisterous elements furnished him with expressions of terror and disgust. He excelled in the charms of conversation; was happy in his allusions to visual objects; and discoursed on the nature, composition, and beauty of colours, with pertinence and precision. This instance, and some others which have occurred, seem to furnish a presumption, that the feeling or touch of blind persons may be so improved, as to enable them to perceive that texture and disposition of coloured surfaces by which some rays of light are reflected and others absorbed, and in this manner to distinguish colours. But the fact is still undecided; and farther trials are necessary, in order to set aside high authorities to the contrary, and absolutely to decide it. Dr. Reid, in his "Inquiry into the Human Mind on the Principles of Common Sense" (ch. vi. § 2.), deduces evidence from acknowledged facts, as well as reasoning, in order to shew, that there is very little of the knowledge acquired by sight, that may not be communicated to a man born blind. One kind of light may be learned and knowing in every science, even in optics; and may make discoveries in every branch of philosophy. He may understand as much as another.
another man, not only of the order, distances, and motions of the heavenly bodies, but of the nature of light, and of the laws of the reflection and refraction of its rays. He may understand distinctly, how those laws produce the phenomena of the rainbow, the prisms, the camera obscura, and the magic lantern, and all the powers of the microscope and telescope. Nevertheless, as to the appearances of colour, a blind man must be more at a loss, because he has no perception that resembles it; though, by a kind of analogy, he may supply even this defect. To those who see, a fseekt colour signifies an unknown quality in bodies, that exhibits to the eye an appearance which they have often observed, and which they well know; but to a blind man, it denotes an unknown quality that exhibits an appearance, with which he is unacquainted. But he can conceive the eye to be variously affected by different colours, as the nose is by different smells, or the ear by different sounds; thus, he can conceive scarlet to differ from blue, as the sound of a trumpet does from that of a drum; or, as the smell of an orange differs from that of an apple. It is impossible to know whether scarlet colour has the same appearance to me which it has to another man; and if its appearances to different persons differed as much as colour does from sound, they might never be able to discover this difference. Hence it is plain, that a blind man might talk for a long time about colours distinctly and pertinently; and if you were to examine him in the dark about the nature, composition, and beauty of them, he might be able to answer, so as not to betray his defect. After all, as a blind man has never had any sensation of light and colour, his knowledge concerning them, however extensive and accurate, must be the result of previous instruction; it must depend on the force of genius, or on the strength of memory; and his language concerning coloured objects must be like that of a parrot, without any precision of meaning, and without any corresponding ideas. On this subject, the reader may derive information from Diderot's "Lettre sur les Aveugles a l'usage de ceux qui voyent," or "A Letter concerning the Blind for the use of those who see," in his "Works," vol. ii.; and they also may consult Chefielden's "Anatomy," and Locke's "Essay on the human understanding."

With regard to the scientific and practical departments of music, every age has supplied numerous instances of blind persons who have attained to great excellence. They will occur among the articles of musical biography in the course of this work.

Of the contrivances that have been devised for the afflance of the blind, we have already mentioned those of Professor Saunders, and of Mr. Grenville, under the article Pupile Arithmetic. We shall here subjoin, from a letter addressed by Dr. Moyes to the editor of the "Encyclopedia Britannica," an account of the papulable notation generally used by him for twenty years, for the purpose of assisting his memory in numerical computations. With this view he made use of a square piece of mahogany, a foot broad and an inch thick, represented by ABCD (Plate I. Alg bras, &c. 3); he divided each of the sides AB, BC, CD, DA, into 24 equal parts; joined each pair of opposite divisions by a groove cut in the board of sufficient depth to be felt with the finger; and perforated the board at intervals, with an instrument 1⁄4 of an inch in diameter. Having thus divided the surface of the board into 576 small squares, perforated at each of their angles, he fitted to the holes in the board three sets of pegs or pins, resembling those in the plates, figs. 4, 5, 6, in such a manner, that when fixed in them they kept their position, and required some force to turn them round. The head of each peg belonging to the first set is a right-angled triangle, about 1⁄4th of an inch thick; the head of each peg belonging to the second set differs from the former merely in having a small notch in its sloping side, or hypotenuse; and the head of each peg of the third set is a square, the breadth of which should be equal to the base of the triangle of the other two. These pegs should be kept in a case consisting of three boxes or cells, each cell being allotted to a set; and the case must be placed close by the board before the commencement of every operation. Each set should consist of 60 or 70 pegs, at least when employed in long calculations; and when the work is finished, they should be collected from the board, and carefully restored to their respective boxes. When a peg of the first set is fixed into the board, it will acquire four different values, according to its position with respect to the calculator. When its sloping side is turned towards the left, it denotes unit, or the first digit; when turned upwards, or from the calculator, it denotes 2, or the second digit; when turned to the right, it represents 3; and when turned downwards, or towards the calculator, it denotes 4. The number 5 is denoted by a peg of the second set, having its sloping side turned to the left; 6, by the same peg turned upwards; 7, by the same peg turned to the right; and 8, by the same peg turned directly down, or towards the body of the calculator. The figure 9 is expressed by a peg of the third set, when its edges are directed to right and left; and the same peg expresses the cipher 0, when its edges are directed up and down. By these different pegs the relative values of the ten digits may therefore be distinctly expressed with facility; and by a sufficient number of each set the freps and reful of the longest calculation may be clearly represented to the sense of feeling. For an example, let it be required to express the value of the number 5389. Take a peg of the first set, and fix it in the board, with its sloping side turned towards the left, which represents 1; take a peg of the second set, and fix it in the next hole in the same groove, proceeding as usual from left to right, with its sloping side turned to the right, and this expresses 7; take again a peg of the same set, and fix it in the next hole with its sloping side turned downwards, and this will represent 8; and lastly, take another peg of the same set, and place it in the next hole in the same position which will denote 9; and thus the whole will express the number required. In order to express a vulgar fraction, the numerator is placed in the groove immediately above, and the denominator in that immediately below the groove in which the integers stand; and in decimal arithmetic an empty hole in the integer groove represents the comma, or decimal point. By similar breaks are also denoted pounds, shillings, pence, &c.; and by the same expedient, the divisor and quotient in division are separated from the dividend. "This notation," says the ingenious inventor, "which supplies me completely with co-efficients and indices in algebra and fluxions, seems much superior to any of the kind hitherto made public in the world of Europe. That invented and described by Mr. Grenville, having no less than ten fets of pegs, is by much too complicated for general practice; and that which we owe to the celebrated Saundcrson is apt to puzzle and embarrases the calculator, as the pegs representing the numerical digits can seldom or never be in the same straight line."
BLINDNESS.

Systematic plan for this purpose was proposed by M. Haüy in an "Essay on the Education of the Blind," printed at Paris in the year 1786, under the patronage of the Academy of Sciences. An English translation of this Essay is annexed to "Dr. Blacklock's Poems," printed at Edinburgh in 1793. The object of this plan is to teach the blind reading, by the aid of books, in which the letters are rendered palpable by their elevation above the surface of the paper; and by the means to instruct them, not only in the liberal arts and sciences, but likewise in the principles of mechanical operations, such as spinning, knitting, book-binding, &c., so that those who are in easy circumstances may be capable of amusing employment, and those of the lower ranks of life, and such as have no genius for literary improvement, may nevertheless, become respectable, useful, and independent members of society, in the situation of common artisans. By these palpable characters, they are taught to read, to write, and to print; and they are likewise instructed, according to their several talents and stations, in geometry, algebra, geography, and every branch of natural philosophy. The institution encourages and cherishes a taste for the fine arts; it teaches the blind to read music with their fingers, as others do with their eyes; and it does this with so much facility, that though they cannot at once feel the notes and perform them upon an instrument, yet they are capable of acquiring any motion with as much exactness and rapidity, as those who enjoy all the advantages of sight. Of this curious and instructive Essay, now before us, we shall give such an account as may serve to gratify those of our readers, who are concerned in the support of plans, somewhat resembling that which it describes, in our own country. The author, after stating the object of his plan, and obviating the difficulties of those who oppose against allowing its general utility, in the two first chapters, proceeds, in the third chapter, to illustrate the method of reading, as adapted to the practice of the blind. This method consists, as we have already observed, in the use of typographical characters, whose elevation above the surface of the paper renders them obvious to the touch, without the intervention of light. From the reception of typographical characters, the transition is not difficult to that of written characters; i.e. of characters not written with ink, but formed by impressions made upon strong paper with an iron pen, whose point is not flat. The characters, thus produced, are distinctly separated and invented; and they are marked on the side of the paper contrary to that which is read; and in such a manner that the position and order of the letters may appear right and in relief when the page is turned. The blind may thus be able to form and decipher musical characters, mathematical diagrams, and all the necessary procecds of arithmetic and geography, as well as those that are printed and written. In the fourth chapter the author replies to several objections that are urged against the method of reading he has proposed. The fifth and sixth chapters contain an account of the art of printing, as it is practised by the blind, for their peculiar use, and also as it is performed for the use of those who see. In the process of printing, the blind compositor has a box for every alphabetical character in use; on the outside of these boxes are palpably marked the peculiar character belonging to each; these are filled with types, which he selects and sets as they are wanted, in a contrary position to that in which they are read. When the types have been arranged and fixed, a page of very strong paper is oiled, so as to be capable of receiving and retaining impressions, and laid upon the types; and then by the operation of the press, or by the easy strokes of a small hammer frequently repeated over the surface, the impression of the type is made to rise on the opposite side of the paper; and it continues, when dry, not only obvious to the sight but to the touch, and is not easily effaced. One the upper side of the paper the letters appear in their proper position; and by their lifted elevation above the common surface, the blind may easily read them with their fingers. The seventh chapter explains the method of teaching the blind to write; which we have already noticed. The eighth chapter shows how they are taught arithmetic; for this purpose they are provided with a board pierced with different lines of square holes, proper for receiving movable figures, and bars for separating the different parts of an operation. To render this board more useful, a case is added, composed of four rows of little boxes, which contain all the figures proper for calculation, and which are placed at the right hand of the blind person while he operates. In order to obtain characters for expressing all the possible fractions, to simple denominators are call, in the order of the figures 0, 1, 2, &c. to 9 inclusively, and likewise to simple numerators in the same order, movable, so as to be adapted at the head of the denominators. By means of this combination, the blind are able to express any fraction. The ninth chapter treats of geography, and in teaching it, M. Weissenbourg and M. Paradis marked the circumference of countries by a tenacious and vivid matter, and covered the different parts of their maps with a kind of sand mixed with glits, in various modes; and distinguished the order of towns by grains of glits, of a greater or less size. M. Haüy satisfies himself with marking the limits of the maps, for the use of the blind, by small iron wire wound; and it is always a difference, either in the form or size of every part of a map, which bids his pupils in distinguishing the one from the other. For the purpose of teaching music, the subject of the tenth chapter, musical characters are call; and these are in numerous, as to represent upon paper, by elevations on its surface, all the possible varieties that occur. The eleventh chapter contains an account of the mechanic arts, in which the blind are employed, and of the method in which they are formed for such occupations. Accordingly they have been successfully employed in spinning, in making paper, thread of the thread they have spun, in weaving garments with this paper, thread, in making nets, in fowling, in binding books, &c. In the twelfth chapter we have a view of the proper mode of instructing the blind, together with a parallel between their education and that of the deaf and dumb. This operation, it is said, is easy in itself, and requires in a manner more courage than knowledge. "By the aid," says M. Haüy, "of our books in relief, every one can teach them to read. Upon the musical works found in our press, every professor of that art may give them lessons. With an iron pen, with plates and moveable characters, executed according to our models, the first maker in writing may teach them that art, and arithmetic." The thirteenth chapter contains a brief account of the elementary books of languages, mathematics, and history, which should compose the library of the blind person. The essay terminates with an historical summary of the rise, progress, and actual state of the instruction for blind children. The success of this institution has fully answered the expectations of its founders, and amply compensated the expense bestowed upon it by the liberal and well disposed. We are happy to add, that institutions of a similar kind have been established in our own country; and to render our particular tribute of respect to the founders and supporters of the "Schule für den Indigenten Blinden," instituted in London in 1799. It is now situated in St. George's Fields, but will probably be removed to Gray's Inn Lane, as soon as the necessary buildings for its accommodation are erected. The object, with a view to which this school was founded, is unquestionably one of the most important and interesting kind that...
that can excite compassion, or demand encouragement. It
provides instruction for the indigent blind, in a trade, by
which they may be able to provide, either wholly or in part,
for their own subsistence; and thus, instead of being alto-
ether a burden to the community, they will be of some ser-
vice to it; and instead of being defribed and cheerless
themselves, under a sense of their total dependence, and for want
of regular employment, habits of industry will relieve their
spirits, and produce the most beneficial effects on their state
and character. The children of this institution, amounting
in the present year (1804) to 32, are completely clothed,
boarded, lodged, and instructed, gratis. The articles at
present manufactured in the school are shoemakers’ thread,
line and coarse thread, yellow felt-linie, and cloaths’-linie (of
a peculiar construction, and made on a machine adapted to
the use of blind persons), by the females; and window and
felt-linie, cloaths’-linie, hampers, and wicker baufets, by
the males. The succifs that has crowned the effects of the
friends of this institution, since its first establishment, affords
sufficient evidence of the degree in which the situation and
faculties of the blind are capable of improvement; and a view
of it in its present prosperous state, will be gratifying to
persons of humane and compassionate feelings. Here they
will not find the scholars sitting in leaflets indolence, which
is commonly the case with the blind, or brooding in silence
over their own defects, and their inferiority to the reft of
mankind; but they will behold a number of individuals, of
a clafs hitherto considered as doomed to a life of sorrow and
disenchanted, and to be provided for merely in almshouses,
or by donations of charity, not less animated in their amufe-
ments, during the hours of recreation, and far more cheer-
fully attentive to their work in thoje of employment, than
persons poofled of sight. This important and useful insti-
tution is under the direction of a president, eight vice-presi-
dents, a treasurer, and a committee of 24 members. A sub-
scription of one guinea annually, or 0 not less than 20 guineas
at once, or within one year, constitutes a member.
To this article we shall subjoin the following directions
given by Mr. Thicknesse, for teaching the blind to write:
Let any common joineer make a flat board, about 14
inches long, and 12 wide; in the middle of which let a
place be sunk, deep enough, when lined with cloth, to hold
only two or three sheets of fool’s-cap paper, which must
quite fill up the space: over this must be fixed a very thin
false frame, which is to cover all but the paper, and fastened
on by four little pins, fixed in the lower board; and across
the lower frame, just over the paper, must be a little slider,
an inch and a half broad, to slip down into several recesses
made in the upper frame, at a proper distance for the lines,
which should be near an inch asunder; and this ruler, on
which the writer is to rest his fourth and little finger, must
be made full of little notches, at a quarter of an inch distant
from each other; and these notches will inform the writer,
by his little finger dropping from noteh to notch, how to
avoid running one letter into another. When he comes to
the end of the line, he must move his slider down to the
next groove, which may easily be so contrived with a spring
to give warning that it is properly removed to the second
line, and so on.
BLINDNESS, in the Veterinary Art, a disease very
frequently happening to horses. The eye of the horse is sub-
jected to various diseases which may occasion blindness, as the
catarâ€”, the gutta perna, opacity of the cornea or its cover-
ings, &c.
The disorder, however, generally inducing blindness among
horses is the catarâ€”, and the inflammation of the external parts
of the globe of the eye, which precedes the obturation of
the crystalline, is termed blindness, as though the disease was
really confirmed; and horses so affected are considered as
such, and denominated blind, though at this period of the
disease the sight is only rendered imperfect.
This destructive disorder, in general commences with an
inflammation of the outer coats of the eye, as the membrana
constrictiva, or cornea, or both together, and extending grad-
ually to the interior, inflames and destroys the transparency
of the crystalline, and obliterates the admission of light.
These attacks of inflammation not unfrequently disap-
pear for a time, or, at least, become much less distinguish-
able, and then return again, observing something like
regular periods of accession and remission; and from hence
the disease has been termed by some the moan blindness,
and these changes were considered as under the influence
of this planet, and corresponding with the periods of its
change: there are, however, other causes more powerful
in their influence, to which these changes in this disorder
may, with more appearance of truth, be attributed, as im-
proper exposure to excessive cold, or drafts of air; to a
clofe, low, over-heated flable, or sudden alternations
from the one to the other; violent exercise and sweating;
then washing with cold water, leaving the hair drenched
with it; acid volatile salts rising from the dung; over-
feeding with too hot, dry, and stimulating food, and all
causes inducing an increased action of the heart and
arteries, naturally tend to induce a recurrence of this com-
plaint.
As this disease is one of the most interrelling in the ve-
erinary art, and the most necessary to be well understood,
as well by poftifional men, as by dealers and poftellers of
horses, we shall deferibe at some length the appearances by
which it is known to exist, and the means that have
hitherto been employed, as far as they have come to our
knowledge, for the removal of it. Those who may desire to
be acquainted respecting this disease, and their practices for
its cure, may be referred to the writings of Abystus and Vegetius:
the latter, in his elegant work de arte Veterinaria, lib. 2,
cap. xvi. de suffusione ocularum, has divided this disorder
into three kinds, under the titles fenocoris, prothesis,
hypochoris; by his definitions, however, of these three
kinds, it appears that he only meant the different stages
of some inflammation of the catarâ€”, from the first inflam-
mation of the eye, to the crystalline becoming perfectly
opaque and burirling its capsule; rushing to the anterior chamber of the eye, and reting, like a white opaque ball,
against the cornea; occasioning a total loss of light, and
which he compares to the yolk of an egg burirling
its situation in the centre of the egg, and to which it can
never be again reduced. He considers the cause of this com-
plaint to be the rupture of the membrane containing the
light; by excessive heat, or more certainly from the fatigue
of a long journey, or the neglected injury of the eye, from
the intarreption of the matter. His hypochoris, which
appears to be the first stage of this disorder, he says, de-
scends from the head; and often shews itself in one eye,
and then migrates to the other, and is attended with a flow
of water or tears. His treatment, in this case, is to
bleed often from the eye-brow, or rather the eye-lids,
and from the temples; to foment frequently with warm
water in which rue and fennel seeds have been boiled; to
anoint the eye “cum collirio opoponato et opolium.” He also recommends applying the actual cautery to the
temples above the veins. This author, in another chapter,
recommends, in this complaint, that you should apply the
n'oil to the fame side with the morbid eye, and you will
find
BLINDNESS.

find a small opening, through which, by inserting a pipe, you may fill the eye with wine, and relieve the disorder; a remarkable proof of the minute and accurate observation of the ancients. The existence of such an opening (for it is, in reality the opening of the lacrimal duct that is alluded to) is not known to many who profess to practise on the diseased of horses at this day.

Abyrus, a Greek writer, who lived about the reigne of Constantine the Great, and prior to Vegetius, recommends, in this disorder, and which he calls ιατρικής, that the ear should be pierced with an awl, and a piece of white hellebore should be inserted in the perforation for its relief.

The following we venture to give as a more natural and true description of the appearances of the eye, during the presence of this complaint, than what has before been exhibited; though, no doubt, subject to many omissions and imperfections, which future observations may lead us to rectify.

The earliest indication of this disease is exhibited by the external transparent parts of the ball of the eye becoming obscured, assuming a blackish glairy hue; sometimes blue or brown, or a dull white, and streaked with blood, according to the degree of inflammation or dilution of the blood-vessels; admitting, according to their capacity, the different parts of the blood which are not transparent; and this inflammation, it may be remarked, takes place more frequently in young horses of five or six years old, than in those of a more advanced age, and the upper half of the cornea generally appears more obscured than the lower; this, however, may be a deception, arising merely from the point of vision, the observer being placed below the eye, and seeing directly through the lower part, and more obscured through the upper. The blood-vessels also may be observed increased in number and size, passing over the opaque white surface of the sclerotic, to the cornea and conjunctiva; for it has not, as far as we know, been ever ascertained from actual dissection or experiment, whether it is the cornea that is inflamed, or the conjunctiva, or both; nor is it absolutely necessary for the treatment, that this should be known.

The eye and eye-lids feel hotter to the hand than usual, and often times there is a deposit of a white matter resembling pus, in the bottom of the anterior chamber of the eye, which, perhaps, proceeds from the vessels of the ciliary fringe, or uvea, which are large in the horse. After this opacity of the cornea has existed some time, the eye of itself, or still more certainly, if antiphlogistic means are tried, returns to its natural brilliancy, and the disorder seems removed; a few weeks or months may elapse before its return; and if these remedies are had recourse to very early, the disorder may even be permanently removed; it very frequently, however, returns, and again disappears, and this several times before the inflammation of the crystalline, and the destruction of light take place. In other subjects, one uninterrupted course of inflammation, without any interval takes place, till the cataract is fully formed.

When this morbid process begins in the crystalline, the inflammation of the exterior parts of the eye often disappears, and they assume their usual brightnes, and afford us an opportunity of distinctly observing the changes which take place in the lens.

And with respect to the cataract itself, or this opacity of the lens, we may remark that the whole crystalline shall assume this milky appearance at once, or a small speck only; this opacity shall be seen, which often remains for years, without the least perceptible increase, and without producing blindnede, or any sensible detriment to the ani-

mal: again, in other cases, no speck is observable but whitish lines which reflect the light, stretching like rays from the centre of the lens to its circumference; and sometimes the capsule containing it is said to be only affected.

The cataract, as it is called, being fully formed, the complete opacity of the lens being established, and light no longer admitted, the iris begins to lose its properties, nearly closing up the opening of the pupil; from its relaxation, the whole eye becomes diminished, and apparently sunk in the head; and the capsule, especially in draft horses, bursts, and the lens is forced from its situation, and falls to the anterior chamber of the eye, resembling, as we have before observed, an opaque white ball.

As perfect cleansers and disinfects in all parts of the eye, with a due contraction of the pupils, are the most certain indications of its goodnes, so the slightest dulness or opacity in the external coats, or diminution of the pupil, should lead the purchaser to be cautious; for it cannot be too often observed, that this opacity, after it has been of some standing, is almost certain destruction to the eye; and there are no remedies at this time known that can prevent its fatal termination, though numerous attempts and experiments have been instituted with this view; and the operation for the cataract is useless in the horse; for if it succeeds, the vision is still so imperfect, that blindnede itself is preferable.

Though various useful offices can be found for horses that have lost their fight; yet it is of importance, for most of the purposes to which they are applied, that it should be preserved. We cannot recommend with too much force, the necessity of an early recurrence to the prescribed remedies for destroying the inflammation; for, at its very commencement, it has probably only the characters of common inflammation, and might be entirely and effectually subdued as in other parts; but neglected, this disorder soon assumes its peculiar properties, arising, perhaps, from the particular structure and functions of the parts affected, and in a short time becomes perfectly beyond the reach of any remedy; for though, no doubt, there are a few infallible instances where this disorder has been removed, yet, as the termination of the generality of cases is of an opposite nature, it would be unwarantable to make a conclusion from such cases of the general possibility of cure in this complaint.

Where the inflammation has not yet received the specific properties above described, the following remedies will frequently remove it; and in more confined cases, we shall mention the means that have been unsuccessfully employed to remove it, that we may shew the insufficiency of such attempts, and promote farther experiment and research respecting it.

In the commencement of this complaint, the use of abstinence from heating food, or hard exercise; exposure to flables of cooler temperature, and well aired, not from partial drafts, but their loftinefs only; exclusion of too much light, or the light altogether; diurem, drinks, and purgatives; such may be employed to the general system. To the part itself, wafties of cold water, or ice and water, or litharge water, or with a small portion of opium dissolved in it; others think more favourably of stimulating or cautic washes, as weak solutions of vitriolated zinc, very dilute acids, and even spirits and water.

Blister applied to the cheek, or over the mafeter muscle, produce an irritation which is very successful in removing this inflammation, and, in particular, the injection of a feton or two in the muscular parts surrounding the eye, care being taken that the fascia over the muscle is divided, otherwise
otherwise there is no suppuration; these will tend, as we have experienced, powerfully to carry off an attack of this disorder. Pricking with a hot iron has also been employed with the same view, on the surrounding skin; and likewise blood-letting from the jugular vein, or from the temporal artery, or locally from the vessels proceeding from the inner canthus, or anterior angle of the orbit; as also the vessels palling over the sclerotic coating, which become very much enlarged and visible in this disease, as well as those in the lining of the lids.

Mr. Coleman, the very ingenious professor of the veterinary college, feared up the vessels of the sclerotic with a hot iron, forming an entire circle round the ball of the eye, at some distance from the cornea, to prevent all access of blood to this part, and so endeavoured, mechanically, to put a stop to the inflammation; it was found, however, insufficient to destroy the disorder, and we believe that any hope of relief from this mode of treatment has since been abandoned; and for this reason, perhaps, this experiment has proved insufficient, that when communication is stopped from the exterior vessels, there are others whole trunks are short of these, which supply the substance of the cornea; and others again, out of our reach, on the inside of the cornea; but above all, the habit in the parts to dilate, and the disposition in the fyllen to generate it, are not overcome, and the morbid tendency is not thereby diminished.

The farriers, who practise medicine, in treating this complaint, often remove the lacrimal gland, which they call the lawn, from its supposed resemblance to this fruit; and as this part partakes of the inflammation, and is much swelled, they mistake it for the source of the disorder. The removal of it, which is easily done, by drawing it out with a hook, and cutting it off, occasions a copious discharge of blood, which, in slight attacks, relieves the eye, and encourages them in this practice; but from our own personal experience we have learned, that in cases of any duration, it is totally inadequate to the removal of the complaint, and the eye must obviously suffer from the loss of a part that is necessary to its well-being: and means lesf injurious to the eye may be equally well employed with as much success, such as we have before pointed out.

An infusion of the polygonum hydropiper injected into the nictitans, so as slightly to inflame the membranes, produces very good effects in this complaint.

It has been observed, that in the human eye, long continued inflammations of the exterior coats rarely produce cataracts, as they do in the horse; and the reason that has been ascribed for this, is, that the same blood-vessels which supply the tinea conjunctiva and cornea, also supply the lens and the humours of the eye, which they lay not the cafe with the human, as these parts are supplied from the eye-lids and integuments; there is, however, in the horse, a singular propensity to inflammatory complaints, and to this disposition, perhaps, it is rather to be attributed.

In the inflammation of the cornea, which is attended with a black, glistening appearance of this part, there is seldom any increased discharge of tears from the eye and nose; but in the other kinds which we have before enumerated, there is, in general, a considerable increase of this secretion. When blood-breaks, or blotches appear, it is probable that the vessels are ruptured, and that this blood is really in a state of extravasation.

BLINK, in Sea Language, denotes that bright, white appearance produced by the ice near the horizon, and perceptible, in approaching the ice, long before it is itself seen. This phenomenon has been often remarked by mariners, and is particularly mentioned in Phripp's (lord Malgrave's) voyage to the North Pole, p. 70.

BLINKS, in Botany. See Montia.

BLINKS, among Ancient Sportsmen, denoted broken down from trees, and thrown in the way where deer are likely to pass, to hinder their running, or rather to mark which way a deer runs, in order to guide the hunter.

BLINKING of beer, in Lincolnshire, signifies letting the wort stand for some time in the vat, till it hath acquired some degree of acidity, in order to dispense it to fame, and be the sooner ready for drinking.

BLISSOM, among Husbandmen, corruptly called blossom, is the act of a ram, when coupling with an ewe.

BLISTER, in Pharmacy. Blisters are nailed on the surface of the body for medicinal purposes, by applying, for a number of hours, some of the most active of the animal or vegetable stimulants. Of these, by far the most convenient, and that which is almost universally employed, is the CANTHARIS, or Spanish flies, (MELIS Venatorius.) These insects are found in Spain, Italy, and the south of France; they have a long body, beautifully bright with green and gold. They are gathered, by shaking the trees which they frequent, and are killed by the vapour of spirit of wine burnt beneath them, or by the fumes of vinegar, after which they are dried in a stove. In this state they are brought over without further preparation.

Cauteritis poffea to much glory, that in reducing them to powder, the face should be covered with a mantle, to prevent the troublesome freezing and evaporation of the fumes, from the inner ducts flying about. Taken internally, in an overdose, they inflame the whole infeetual canal, in a greater or less degree; and they have a peculiar tendency to irritate the urinary organs. Applied to the skin, they inflame the part, but often, with scarcely any attending pain; after which they produce a very copious blisters of clear, yellowish serum beneath the cuticle, which rises in a large bag. This effect appears to produce a vesicating property in a much larger degree, in proportion to the pain excited, than any other stimulant; and hence its peculiar utility in producing this ferox discharge with the least possible inconvenience to the patient. It is not exactly known in what part of the exit the vesicating property resides, or whether it does not equally belong to every part. It is not easily destroyed, or impaired by long keeping, if the effect be unbruised, and preferred in a dry place.

For blistering the skin, the cauteritis are first finely powdered, and then incorporated, with some labour, with a simple mixture of wax and resin melted together, to which some add a little vinegar, and allowed to grow nearly cold before the flies are added. This is a necessary precaution, since it is certainly known that a considerable heat impairs the blistering property. The plaster, thus made, should be of such a consistence, as readily to soften with a moderate heat. When used, it is generally spread uniformly upon leather, of the requisite size and shape, by the assistance of an iron plate, warmed fearfully more than the hand can bear.

To increase the effect, some apothecaries sprinkle the plaster with powdered cantarides, after it is spread on the leather, but this is not necessary, where the plaster itself is good; and the powder is apt, after application, to lodge on the tender cuts, and produce much vaselines irritation. As the blistering plaster adheres very loofely to the skin, it is useful in applying it to children, to maniacal persons, and wherever it is in danger of being too soon pulled off, to surround the blister with a margin of strong adhesive plaster.

The
The plaster of cantharides seldom fails to produce a large blister, in ten or twelve hours; but its operation continues sometimes longer, so that it may be conveniently suffered to remain for twenty-four hours, the large cuticular bags being punctured to let out the fluid. When the plaster is taken off, and the form mostly discharged, the blistered part should be dressed with arnica, or some other mild ointment, unless it is intended to keep up the serous discharge by fluctuating applications.

The pain produced by the action of cantharides varies greatly, according to the part affected, the thickness of the skin, and the general irritability of the constitution, and in particular of the surface of the body. Most frequently the pain is very slight, often amounting to no more than a sense of heat on the part. When very acute, it is of great service to remove the plaster, when it has been on about two hours, to anoint the part with oil or cream; and about an hour or two after, to replace the blistering plaster, which will then often proceed to vesiculate without much further irritation.

The operation of cantharides is much affected by the thickness of the skin beneath; and hence the scalp refills vescication more than the softer skin of the abdomen; and particularly by the heat of the body, so that the plaster should be stronger, and its confidence softer, when applied to an unusually cold surface.

Sometimes, though rarely, the symptoms of strangury produced by this active medicine, follow even its external application.

A more active vesicatory is prepared by being made up of other irritant substances to the cantharides plaster. In the Paris Pharmacopoeia, euphorbium (the moli acid of all the medicinal gums) is added in equal quantity with the cantharides: in the Edinburgh, verdegris, mulfard, and black paper are used.

It is often of advantage to keep up a discharge from a blistered part for a considerable time. It then becomes gradually purulent. For this purpose, a milder form of cantharides is highly useful, and a softer confidence is given to it. This may be done by mixing a small portion of the flies in powder, with any simple ointment; but this is liable to act unequally, and the whole of the fly sometimes create trouble, by lodging upon the tender cuts. To remedy this, the London college use a watery infusion of cantharides, mixed with a stimulating resin ointment, melted, and continued over a slow fire, till all the water is evaporated, leaving a small portion of extractive matter of the flies, equally diffused through the ointment, and strongly increasing its stimulating power.

A few other substances have been occasionally used to produce vescication. One of these is the inner bark of the Mezeron, (Daphne mezeron) and of another plant of the same genus, the Thymbra Lauroce, or Spurce Laurel, (Daphne Laureola) both shrubby plants, well known in gardens. The use of the latter (which will equally apply to mezeron) is thus directed in the Paris Pharmacopoeia. Small twigs of the plant, about the size of a pen, and smooth, are selected, and cut transversely into portions of the requisite length. These are steeped in milk-warm water, or in vinegar, for about half an hour, to loosen the bark, which is then peeled off with a pen-knife, and the wood is thrown away. This bark is applied to the skin to be blistered, previously rubbed with vinegar.

In twenty-four hours a perfect vescication is produced, with little pain, and without the possibility of those symptoms of strangury, which now and then attend the use of cantharides.

BLISTERED, bullaeatus, in Botany, is applied to the Vol. IV.
**BLO**

It is a common habit with farriers practising medicine, to mix corrosive sublimate with their blister; and, where it may be desirable to destroy the skin, this should be used, but not otherwise; for it is no specific, but a violent caustic, soon destroying any living matter with which it comes in contact, and which we have, from the ignorant use of it, the most deplorable effects, by its bringing off extensive sloughings of the skin, and even penetrating to the parts beneath, and so injuring them, as ever after to render the horse unmanageable. There is an effect produced by the cantharides on the skin of the horse, which, as far as we know, has not met with much attention; though it is very remarkable, and not analogous to its effects on the human skin: it is that prodigious thickening of the integuments, after the operation of the blister, which sometimes does not subside for many weeks, being a great disfigurement: a blister, therefore, if one could be devised not producing these effects, would be a desirable thing in the veterinary Pharmacopeia. This effect, we should, however, remark, is not constant.

**BLITAS, L., in Geography, a chaffer of small islands in Nicaragua lake, in Spanish North America.**

**BLITH.** See **BLYTH.**

**BLITE, a river of England, which runs into the Trent, 4 miles N.E. of Litchfield.**


**Biff, Char. Cal. triul. Pet. none. Seed one, with a berried calyx.**

Species 1. *B. capitatum*, berry-headed strawberry-bltie, Lin. Spec. 6. Reich. 11. Hal. helv. n. 1571. Morocarpus capitatus. Scop. Carol. n. 3. Atriplex. Bath. pin. 119. n. 7. Prodr. 58. n. 2. Ger. m. 326. n. 8. Park. 748. f. 1. Mor. hist. 2. 506. f. 51. 3. 52. f. 11. Raff. hist. 157. n. 57. "Heads spikeld terminal." An annual plant, with leaves resembling those of Spinach, and stalk rising, in gardens, about 2 feet high; but in a wild state, upright and only about a foot high; flowers on the upper part in small heads at every joint, and terminated by a calyx of the same; when the flowers are in, these heads swell to the size of wood-flowerberries, and when ripe have the same appearance, full of a purple juice, which stains the hands, and formerly much used in cookery, for colouring puddings, &c. seed black when ripe; commonly called strawberry bltite, strawberry spinach, or bloody spinach, and by some, berry-bearing orch. A native of Switzerland, the Grisons, Austria, the Tyrol, Spain, and Portugal; cultivated by Parkinson, in 1653. 2. *B. virgatum*, slender-branched strawberry bltite. Lin. Spec. 7. Reich. 12. Gmel. flb. 3. 16. Atriplex. Bath. pin. 119. n. 6. Mor. 1. 32. f. 10. Raff. hist. 157. n. 6. "Heads scattered, lateral." Seldom growing more than one foot high, with smaller leaves than the former; flowers produced from the axis, almost the whole length of the stalk; small, and collected into little heads, smaller than the frst, and not so deeply coloured, but of the same shape. A native of the south of France, Spain, Italy, and Tartary.

3. *B. tataricum*. Mill. Dict. n. 3. E. fr. giferum maximum polypermum. Ann. n. 17. "Leaves triangular, harshly toothed; heads simple, lateral." Rising near three feet high; flowers axillary, in small heads; fruits of the same shape and colour with those of the frst, but smaller; differing from it in the shape and indentures of the leaves, and in having leaves placed between the fruits the whole length of the stalk, not terminated by heads, as the frst, but having leaves above the heads. Probably a variety of the second sort. The seeds were sent to Mrs. Miller by Dr. Amman, professor of botany at Petersburg. 4. *B. chenopodioides*. Linn. Syll. Reich. 12. Mast. 176. "Heads in whorls, julceula." A low plant, resembling chenopodium. A native of Tartary; now in Sweden. Probably only a variety; and in reality the four sorts seem to be but one.

**Propagation and Culture.** All are annual plants, which drop their seeds, that will produce plentifully the following spring; or if the seeds of any one of them be sown in March or April, upon a bed of common earth, in an open situation, the plants will come up in a month or six weeks, and remaining in the same place, will require no other care besides being kept from weeds, and thinned out to the distance of six or eight inches apart; and in July the plants will begin to shew their berries, which will make a pretty appearance. By many they are transplanted into the borders of the flower garden, and by others planted in pots, so as to be ready for removal into the court-yard, or for being placed upon low walls for ornament. When these plants are designed to be removed, they should be transplanted before they shoot up their flower-blems, for they will not bear transplanting afterwards; and when planted in pots, they must be watered in dry weather; and, as the flower-blems advance, they should be supported by ficks. Martyn.

**BLITUM.** See **ACHYRANTHES, AMARANTHUS, CHENODIUM, and GUNNERS.**

**BLOATED!** or *herring*, in our *Statures*, are those which are half dried. Vide Stat. ann. 18 Car. 11. c. 2.

Blotted herrings are made by steeping them in a peculiar brine, and then hanging them in a chimney to dry.

**BLOATING, in Medicine.** See **LEUCOPLHEMATIA, and OEDEMA.**

**BLOCH, Mark Eleazar, in Biography,** a Jewish physician at Berlin, and a celebrated lexicographer, was born at Anspach in Franconia. His parents were in a condition so obscure and deplorable that they were scarcely able to maintain him during his infancy, and much less to procure for him any suitable means of education. At the age of 15 he understood neither German nor Latin; and as he had read only a few Rabbinical books, he spoke a kind of Franconian gibberish, intermixed with the Jewish jargon. About this time, however, he was taken into the house of a surgeon at Hamburg, who was a Jew, and employed by him in the instruction of his children; and in this situation he acquired a competent knowledge of the German language. The savings of his scanty salary enabled him to procure attainment in the study of Latin. Having also gained some knowledge of surgery, he repaired to Berlin, where his relations lived, with a view of prosecuting the study of anatomy. After struggling with various difficulties, he was admitted as doctor in the university of Franckfort, and returned to Berlin for the exercise of his profession. Here he became acquainted with M. Martini, who recommended him to be elected a member of the Society of the Friends of Nature. In order to promote the objects of this institution, he undertook a natural history of mice, a fift caught, as it was supposed, only in the lakes of Pomerania. He also began to form a cabinet of natural history; and having made a considerable collection...
of aquatic animals from all parts of the globe, he determined to write a natural history of fishes; and in this design he was encouraged and aided by obtaining possession of the original MSS. of Father Plumer, who had made three voyages to America, and brought with him many objects highly interesting to the natural historian. M. Bloch first published, in German, four numbers of an "Economical Natural History of Fishes, particularly those in the lakes of Prussia, with figures from original drawings," Berlin, 1781 and 1782, large 4to. In the following years appeared an "Economical Natural History of the Fishes of Germany," in 3 volumes, consisting of 188 plates, and including the three numbers already mentioned. He afterwards published, in 9 volumes, "The Natural History of Foreign Fishes," so that his whole work was comprehended in 12 volumes, and contained 432 plates. The last appeared in 1793. He also, at his own expense, procured a French translation of his work, by C. Lavoisier, then at Paris, which he published under the title of "Histoire général et particulière des Poissons," Berlin, 1785—1788, in 6 vols. folio, with 216 plates. In order to defray the expense of this work, his only son, a young man distinguished by his talents, undertook a tour through France and England for the purpose of procuring subscriptions; and in the prosecution of his journey died at Paris, in 1787. This loss, and the embarrassment of his circumstances, preyed upon the spirits of this ingenious naturalist, and sunk him into the deepest affliction. However, he still continued to employ himself in his favourite work, the history of fishes; and having completed it, undertook a journey to Paris. He died at Carlsruhe in Bohemia, August 6th, 1799. Besides the above voluminous works, M. Bloch published many memoirs on subjects of natural history, in the transactions of different societies. That on the musk-ox, in the Memoirs of the Friends of Nature, has been already mentioned; he also communicated, in the same Memoirs, "Observations on the regular depressions in vitriform bones;" "On the worms in the intestines and lungs of birds;" "An Essay towards the natural history of the worms which live in other animals;" "On worms of the bladder;" "Description of the hussar, and some kinds of birds found in marshes;" "On the oil of herrings;" "On the vulgar opinion that the organ of generation in the ray and shark is double;" "On the myxina glutinosa of Limousin," &c.

BLOCK, Daniel, an eminent portrait-painter, was born at Stekkin, in Pomerania, in 1560, and educated for his profession under Jacob Scherer. As a painter of portraits, he gained great reputation, and had the honour of painting the portraits of Christian IV. king of Denmark, and of Gustavus Adolphus, king of Sweden. His merit recommended him to the prince of Mecklenburg, in whose service he was retained for 44 years, and for whom he painted the portraits of his whole family, at full length, as large as life, and in the antique habit. By the agreeable manner of his colouring, and the easy attitudes of his figures, he obtained so much employment, as to enable him, before the decline of his life, to amass a large fortune; of which, however, he was unfortunately deprived by a plundering party, preferring, with great difficulty, his own life. He died in 1661. Pilkinson.

Block, Jacob Roger, was born at Gouda, where he acquired the art of painting; particularly in reference to perspective and architecture, which he principally cultivated. Having spent several years in Italy, where he imbibed that taste of grandeur and elegance in his compositions, by which he was advanced in the public esteem above all his contemporaries, he returned to his own country, and was appointed state-painter to the archduke Leopold, whom he attended in all his campaigns; but whilst he was passing a small rivulet, ever a bridge of planks to view the fortifications of St. Vinsin in Flanders, his horse slipped, and he was unfortunately drowned. Whilst he lived at Gouda, he was visited by Kenvena, who, having examined his works, testified to his honour, that he had not seen any painter in the Netherlands, who could hold in competition with him for the subjects he painted. The time of his birth and death are not ascertained. Pilkinson.

Block, Benjamin, son of Daniel-Block, was born at Leubeck in 1631, and, with a view of improving himself in colouring and design, resided for some time at Rome, Venice, and Florence. Having thus acquired a good taste, and a pleasing tone of colouring, he was introduced to the court of Saxony, where he painted several portraits of the elector and prime-minister; and he also painted several altar-pieces for the churches and convents of Hungary, which are much commended. His capital performance is the portrait of Kircher the Jesuit, which, even at Rome, was exceedingly admired. The time of his death is not ascertained. Pilkinson.

Block is used for a piece of marble as it comes out of the quarry, before it has assumed any form from the hand of a workman. Block, in the Mechanic Arts, a large piece of solid wood, wherein to fasten work, or to fashion it; strength and stability being the requisite properties.

In this sense we say a chopping block; a sugar-melter's block; a smith's block; on which he was felled; an executioner's block, on which the criminal's head is laid to be struck off.

Block, Mounting. See Anabathira.

Block, among Cutters of Wood, is a form made of pear-tree, box, or other hard and close-grained wood, free from knots, on which they cut their figures in relief, with knives, chisels, &c. The line are in use for card-making; and from the same firrll arose the modern art of printing. Phil. Trans. N.S. vol. 100. p. 239.

Block, among Bowlers, the mark which is aimed at, being a small fixed bowl laid on the green for this purpose; it is called also the jack.

Block, in Falconry, denotes the perch whereon a bird of prey is kept. This is to be covered with cloth.

Block Island, in Geography, called by the Indians "Manilis," lies about 21 miles S.S.W. of Newport, in Newport county, and date of Rhode Island. It was erected into a township, named "New Shoreham," in 1672. This island is 7 miles in length, and its extreme breadth is 4 miles. It has 714 inhabitants. It is famous for cattle and sheep, butter and cheese; and round its coasts are caught considerable quantities of cod-fish. The southern part of it is in N. lat. 41° 8'.

Block, in Nautical Architecture, denotes an eight square, or round part below the heeling of the main and fore topsails.

Blocks are short pieces laid under a mast to raise it from the ground.

Blocks are also pieces of wood belonging to ships, in which the fenders, or threavers, of pulleys are placed, and wherein the running ropes go. Accordingly they possess the properties and powers of pulleys, and they have from one to eight threavers. The blocks in general use are the single-block, the double-block, the treble block, and the four-fold block; but when heavy weights or bodies are to be raised or moved, blocks with a greater number of threavers are applied, the increasing power being as two to one for every threaver moving with the object. See Pulley.

Blocks differing from the common shape are the bee-block, the check-block, the long-tackle-block, the main-tackle-block, the monkey-block, the pine-pulley-block, the rack-block, the
hoe-block, the shoulder-block, the fitter-block, the snatch-block, the strap-bound-block, the viol-block, and the warping-block. The principal parts of blocks are their shells, sheaves, and pins, which are of various sizes and powers, according to the effect which they are to produce. The dimensions of the shells, and the thickens and number of the sheaves, are proportioned to the size of the ropes working in them, and the powers required. The sheaves turn abreast of each other in the shell, on one axis or pin, or one above another, on separate pins. The shell is made of elm or ash, and hollowed between the cheeks, with one or more sheave-holes to receive the sheave or sheaves. On the outside of the sheaves of blocks that are to be strapped, one face is cut towards the ends, in which part of the strap is buried; if they are double-strapped, they have two sheaves. A hole is bored through the centre to admit the pin; which, passing through both lides of the shell, forms the axis for the sheaves. The sheave is a solid cylindrical wheel, and round its circumference is a groove, one-third of the thickness of the sheave deep, in which the rope works. It is commonly made of lignum vitae; but for laborious purposes, it is coated in the middle with metal, or else made of cast metal; if the sheave is iron, it is coated with brass, and if of brass, with the hardest bell metal. The hole in the centre is somewhat larger than the pin. The pin is made of lignum vitae, copper, greenheart, which is a wood imported from the West Indies, or iron, and it is the axis on which the sheaves turn.

The proportions for single, double, treble, four-fold blocks are as follow: viz., the length is eight times the breadth of the sheave-hole, which is one sixteenth of an inch more than the thickness of the sheave; and this is one-tenth more than the diameter of the rope for which it is intended, and the diameter of the sheave is five times the thickens. The breadth of the block is six times the thickness of the sheave, and the thickens about one half the length. Flat thin blocks are three-eighths of the length thick; but all blocks, having more than one sheave, are increased in thickens more than in the above proportion by the additional number of sheave-holes, and middle-parts or partitions; the thickens of each partition being one-sixth less than the breadth of the sheave-hole. These dimensions are variable, according to the uses for which blocks are intended. Very large and four-fold blocks are formed of separate pieces, as the cheeks; partitions, &c.; and when thus made, they are denominated "made-blocks." The sheaves of blocks are firmly fastened to their length, breadth, and thickens; and the corners or angles are taken off. The workman then gauges the size of the sheave-hole in the middle, one sixteenth larger than the thickens of the sheave, and the sheave-hole is gauged equally on each side, and for all blocks with a greater number of sheaves. The blocks are then jambed up edgewise with wedges in a clave, and the sheave-holes are made in this manner: the length and breadth are first gouged out, and holes are bored half way through the block, along the part gouged out, with an auger of the size of the sheave-hole; then the sheave-hole is gouged and bored on the opposite side in the same manner, so as to meet the opposite holes. Blocks from 10 inches and upwards have one hole bored at each end, and cut through with a chisel; and the wood is faved out with a rib-flaw. All blocks have the sheave-holes cleared through by chisels, and by burners at the corners. Blocks that are to have iron straps, should have the iron fitted on before the wood is cut out of the middle. The hole for the pin is bored through the middle of the block, one-tenth less than the diameter of the pin. The outsides and edges of the shell are next rounded off by the block-flame, and neatly finished by the spoke-flame. In the royal navy, blocks are left thick upon the edges of the cheeks; but in the merchant ships, the edges are sometimes thinned off to a small square, and sometimes rounded off. The sheaves for the straps are gouged out along the outsides of the cheeks, and taper in depth from nothing at the pin to half the thickens of the strap at the ends of the block, for a single sheave, and the same on each side of the pin for a double sheave. The sheaves are gouged down, across the breadth of the block, to half the size of the strap, in order to allow for the serving. After the sheave is cut, the sheaves are fitted; they are one-tenth thicker than the diameter of the rope intended for running on them, and five times that thickens in diameter. The hole for the pin should be bored through the centre by a bit fixed in the mandrel of a turning lathe, or with a block and bitt, and reamed with an augre one sixteenth larger than the diameter of the pin, so that it may easily turn; they are then put in a lathe and turned smooth, and the outer circumference hollowed one-third of its thickens, that the rope may embrace it closely. The diameter of the pin is the thickens of the sheave, and is turned in a lathe, except its head, which is left eight square, to prevent its turning in the block, and is driven through the holes in the block and sheaves. After the sheaves are fitted, the middle of the sheave or cheek, or the face of the block, is gouged hollow, to admit the rope, and correspond with the sheave; and a small neat chamfer is taken off the edges.

Blocks, Bes, are made of elm, in length seven-ninths the length of the bee, in depth two inches for every foot of length, and in thickens seven-eighths of the depth. A block of this kind is trimmed square, chamfered on the outside edges, and fitted with a sheave in one end; and in the other end is cut a hole, to be fitted with a sheave, in case the other should fail. The sheave-hole is nine-tenths of the length of the block, and the length of the sheave-hole in breadth, and half the length of the sheave-hole within the end. Bee-blocks are bolted to the outer ends of bowsprits, under the bees, and the bolts serve like the axis or pin for the sheaves to work upon; the fore-top-mast flay-rees through the sheave-hole at the fore-mast end of the fore-board bee-block, and the fore-top-mast prevents, or spring-flay, through the sheave-hole at the after-end of the afterboard bee-block.

Blocks, Bunt-line, are lashed in rigging the lower-yards, like the leech-line blocks in the middle between them and the flings of the yard. There, in rigging the top-fall yards, are spliced round the strap of the top-fall-tye-block, upon the yard.

Blocks, Cat, is employed to draw the anchor up at the cat-head. See CAT-HEADS.

Blocks, Cheek, or half-blocks, are made of elm-plant; the length being twice and a half the depth of the top-mast head; the breadth is seven-eighths of the depth of the top-mast head, and the thickens half that depth. The depth of each tenon, and thickens of the cheek, when the sheave-hole is cut, is each three-eighths of the whole thickens, so that the remaining two-eighths are the sheave-hole. The three tenons are each two inches square, one in the middle, and one at each end; and the length of the holes is more than the breadth of the block, by the thickens of the sheave.

The back of the block is divided into three parts, and one-third on each side is bearded down to one-third the thickens of the cheek on each edge. Pins of iron are made for
BLOCK.

Enlarging them to the top-mast head, and for durability the sheave-holes are coppered. Check-blocks are bolted to the thwart-pin stiles of top-mast heads, close up under the cap, the bolts serve as the pin or axis for the sheaves to work on; the jib-flay and haliards, and top-mast flays, sail-flay, and haliards reeve through the check-blocks at the top-mast head, and the main-topmast flay fail haliards, and middle-flay, fail-flay, and haliards reeve through the check-blocks, at the main-topmast head.

Blocks, Clew-garnet, serve to draw the clews, or lower corners of the courses up to the yards, and are fastened to the clews of those fails. In rigging the lower-yards, these lath through the eyes upon the yard; the blocks hanging underneath, four feet without the middle cleats on each side. See Clew-garnet.

Blocks, Clew-line, in rigging the sprit-flay yard, are flapped with two eyes, and are lathed through those eyes round the yard, three feet without the flings; the lathing to be upon the yard. In rigging the sprit-flay top-fall yard, these blocks are flapped with two eyes, and are lathed through those eyes round the yard, about two feet without the flings. The clew-line blocks, in rigging the top-fall yards, are lathed with two lathing eyes, and lath upon the yard three feet without the flings; the blocks hanging underneath the yard through which the clew-line reeves, and is flapped with a knot, and leads down upon the deck. In rigging the top-gallant yards, these blocks are flapped with two lathing eyes, and lath upon the yard three feet without the flings. The blocks hang under the yard, through which is reeved the clew-line, which is flapped with a knot. The leading part leads down the main, and into the lower yardblocks. Some flaps and light-rigged vessels have no clew-line blocks; they lower the yard.

Blocks, D, are lumps of oak in the shape of the letter D, from twelve to sixteen inches long, and eight or ten inches wide. They are threaded and bearded on the back, and the edges beaded. A sheave-hole is cut through the middle fore and aft. It is bolted to the ship's side, in the channels, to receive the lifts, &c.

Blocks, Deep-seat-blocks, are the same as a wooden match-block (which see), only smaller; generally from nine to eleven inches long.

Block, Derrick, in rigging the mizen-yard, is flapped with eyes, that go round the yard, and lath underneath, between the flings and the outer yard-arm or peck; the other block is cross-feized into the flap, has an eye flapped in each end, and lath upon the mizen cap, and feizes or hangs through the eyes under the cap, or upon the upper side of it.

Block, Fisb, is hung in a notch at the end of the davit, and serves to haul up the flukes of the anchor to the ship's bow.

Blocks, Girt-line, in rigging the fore-mast, and main and mizen masts, are lathed round the mast head, above the fop of the cap, one to hang on each side. The girt-lines that reeve through them lead down upon deck, for hoisting the rigging-tops, and crosstrees, and the perrons employed to place the rigging over the mast-head.

Blocks, Leech line, in rigging the lower yards, are lathed round the yard, and through the eye of the flap, ten feet within the cleats on each yard-arm; the blocks hang on the fore-part of the yard.

Blocks, Lift, in rigging the lower yards, are flapped into the flap of the top-sail-sheet blocks; the lifts reeve through the block in the span round the masts head, between that and the top-mast, then lead down abreast the throuds, and reeve through a block fastened to the side, and are there belayed. In rigging the top-sail-yards, the lift-blocks are flapped with an eye to the side of the yard arm. The lift reeves through the lower sheave in the filler block in the top-mast throuds, and through the block on the yard-arm.

The flanding part hooks to a becket round the topmast-cip, and the leading part leads down the side of the mast, and belays to the dead-eyes in the lower throuds.

Block, Long-tackle, resembles two single-blocks joined together endways, one being two-thirds less than the other. The heel is made of ash, or elm, two-thirds longer than the proportion for a single block. These blocks are used for tackles, and are made according to the size of the rope, as other single blocks. They are used in the Royal Navy and East India service as yard-tackles; but in the merchant service as loading tackles.

Blocks, Middle, have the shell formed of several pieces of elm-plank, fitted to the thicknees of the cheeks, sheave-holes, and middle parts, and are strongly bolted together with three bolts at each end, driven through and clenched on a ring at the points. These blocks have flatter cheeks and more square edges than other treble and four-fold blocks. Of this sort are large treble and four-fold blocks, for heaving down ships, or other heavy purchases. Smaller made blocks, of modern invention, are formed of two pieces, joining in the middle; the pin working on patent rollers, let into the inside of the cheeks, which are bolted or rivetted together at the ends. These blocks are thought too complex for the Royal Navy, and are not fo easily remedied in case of failure.

Block, Main-fleet, is used for the fleet-tackle of the main-foam-booms of small vessels, and is single or double; the fleet or fall being always belayed round the pin. The shell is made of ash or elm, one half longer than the proportion for single or double blocks; the additional length is tapered, and a hole bored through between the sheaves and the end, to admit the flap; the length of the pin is the length of the block, and is similar to a belaying pin, for which purpose it is sometimes used.

Blocks, Monkey, are sometimes used on the lower yards of small merchant ships, to lead (into the mast or down upon deck) the running rigging belonging to the falls. The shells are made of ash or elm; some are only single flangle blocks, attached by a strap and iron swivel to iron-straps that embrace and nail to the yard, the block turning to lead the small running-ropes in any direction; others are nearly eight-square, with a roller working in the middle, the same as a flangle, with a wooden fiddle beneath, to fit and nail to the yard.

Blocks, Nine-pin, are used to lead the running-ropes in an horizontal direction. The shell, made of ash or elm, resemble the form of a nine-pin, though flatted on the sides; their lengths are generally confined to the place in which they are fixed, and this is for the most part under the cross-pieces of the fore-castle and quarter-deck bitts. The breadth of the block, sheave, &c. is governed by the rope, and tapers at the ends to three-eighths of the breadth of the middle; the pin at each end, serving as a vertical axis, is two thirds of the bigness of the end. The thicknees is five-eighths of the breadth. These blocks may be turned in a lathe, and flattened afterwards with a spoke-thaxe.

Block, Quarter. See Thick and thin Block.

Blocks, Raft, are a range of small flangle blocks, made from one fop, by the fame proportions as flangle blocks, with ends, in form of a dove's tail, for the lathing, by which they are fastened athwart the bowfrant, to lead in the running-ropes. They are seldom used.

Blocks, Shos, are two single blocks, cut in a solid piece, transferably to each other. They serve for legs and falls of the shunt-lines, but are seldom used.

Blocks, Shoulder, is a large single block, left nearly square at the lower end, or of the block, and cut floping
in the direction of the sheave. Shoulder-blocks are used on the lower yard-arms, to lead in the top-fall sheets; and, on the topfale-yards, to lead in the topgallant-sheets; and by means of the shoulder, are kept upright, and prevent the sheets from jangling between the block and the yard: they are also used at the outer end of the boomskin, to lead in the fore-tacks.

Blocks, Siller, are made of ash, similar to two single blocks, and are turned out of a solid piece, about twenty inches long, one above the other; between the blocks is a square for a middle seizing: a round head is turned at each end, and hollowed underneath, to contain the end-seizings; along the sides, through which the pins are driven, is a groove, large enough to receive part of the topmast-shroud, in which it is fixed. In these blocks receive the lifts, and reef-tackle-pendants, of the topfale-yards.

Blocks, Slab-line, in rigging the lower-yards, are fraped with a short lashing-eye, that fastens to the span of the quarter-blocks underneath the yard.

Blocks, Snatch, are proportioned by the rope, as a single block, leaving twice the length for the fore and lashing; they taper from the sheave to the lashing end, to half the breadth and thickness at the sheave; one side of the sheel is cut across above the sheave, large enough to admit the rope or fall. In the Royal Navy, snatch-blocks are iron-bound, terminating at the small end with a fivelock, or an eye, large enough to receive several turns of lashing; that part of the lrap, over the notch in the side, lifts up with a hinge, and is confined down, when the rope is in the block, by a small iron hook, or latch, that hooks in the eye of a toggle-bolt, and that secures the upper end of the lrap; the hinged part of the lrap goes over the bolt, with a hole in the end; the lrap is let into the block its thickness, and is confined by the pin and nails: they are used for heavy purchases, and where a warp, or hawser, is brought to the capstern. Snatch-blocks, not iron-bound, have a large hole bored through the tapering end of the sheel, for the lashing. They are used for the main and foresheet blocks of square-rigged vessels.

Block, Spring, a new kind of block, invented by Francis Hopkins, esq. of Philadelphia, and designed to affix a vellel in falling, by increasing the acting spring of her rigging. It is proped to apply it to all such parts of the rigging as will admit of it with safety and convenience, and where its operation will be most advantageous; but particularly to the sheet ropes, and, if practicable, to the dead-eyes, in lieu of what are called the chains. A, (see Plate of Ship) is a block made in the usual manner, having a ring, or eye, B, at one end. C is a spiral spring, linked at one end to the hook D E, and at the other to the ring F, which is to be annexed by a tapple to the timber-head, or by some other means to the place where it is to be applied. The spring C must be of well-tempered steel, and proportioned in strength to the service it is to perform. Within the cavity or pipe, formed by the spiral spring, there must be a chain of suitable strength, called a check-chain (represented separate at G), connected by the links to the hook D E and ring F. When the spring is not in action, this chain is slack; but when the spiral spring is extended, by the force of the wind, as far as it can be without danger of injury, the check-chain must then begin to bear, to prevent its farther extension, and, if strong enough, will be an effectual security against failure.

Fig. 2. represents part of the gun-wale of a ship, with the spring-blocks in action, one of them hooked to a tapple in the timber-head, and the other to the corner of the jib.

The inventor of this machine apprehends, that a vellel thus furnished will be less liable to heel; and that the will receive the impulses of the wind to better advantage, and fail with a more lively and equable motion than if rigged in the common way. Transactions of the American Philosophical Society, vol. III. art. 40.

Blocks, Strap-bound, are single blocks, with a shoulder left on each side, at the upper part, to admit the strap through, a little above the pin. These blocks are used at the ches of the square-fails, for the clew-garrets or cheline, and under the yards; the shoulder preserves the strap from catching.

Block, Thick and thin, or Quarter, is a double block, with one sheave thicker than the other, and is used to lead down the topfale-sheets and clue-lines. In the merchant service they are used single, thick and thin. In rigging the lower yards, they are fraped with a long and short leg, with a lathing eye spliced in the end, and fast to the yard within the ches, in the middle of the yard, the block hanging downwards. The long leg comes up the aft-side, and meets the short leg on the fore-side, and there lathes through the eyes. Although these are used for the topfale sheets, and intended for the clue-lines, a single block would be cheaper and better; as, when the sheave is seldom used for the clue line, it being found rather to impede than to facilitate. Small ships, in the merchant service, have a double block lathed in the middle of the yard, as the quarter block through which the sheets receive, and lead down on opposite sides. Large ships, in the merchant service, have a single block lathed on each side of the middle of the yard, and the sheets receive on their respective sides, and lead down by the mast. A quarter block, in rigging the cross-jack-yard, is fraped with a double strap, with an eye in each of the four ends, and is lathed upon the yard in the middle between the ches.

Block, Top. See Top-Rope.

Blocks, Top-Gallant-Sheet, in rigging topfale yards, are fraped with two lathing-eyes, and lath upon the yard, close within the clue-line-blocks on each side.

Blocks, Topfale-Sheet, in rigging the lower yards, are put over the yard-arms, fraped with an eye of the size of the yard-arm.

Blocks, Triceing, for the yard-tackles, are fraped with a short lathing-eye, that lathes round the yard about one third of the length within the arm ches; the blocks hanging under the yard.

Blocks, Try, in rigging the topfale-yards, last at the topmast-head close up to the rigging, under the collar of the stay, as the lower ones; and the blocks on the yards last under the fore-part of the yard, as the lower ones, and receive with a double tye, in large ships, and with a single tye, like the lower, in small ones. The standing parts of the double ty'es clinch round the main-head, then reeve through the double block upon the yard, and up again, and reeve through the block on each side of the main-head. The blocks are then spliced in their lower ends, and connected by their hallards to a single block, that is fraped with a long strap, with a hook and thimbles, that hooks to a swivel-eye-bolt in the channel on each side; the leading-part comes in through a block lathed on each side; the foremost ones abate the forecastle, and the after ones on the quarter-deck.

Block, Royal or Viol, is a large single-sheave-block; the length is ten times the thickness of the sheave-hole, which is three-eighths more than the thickness of the sheave; the thickness of the sheave is one-tenth more than the diameter of theviol, and the diameter of the sheave is seven times the thickness. The breadth of the block should be eight times the thickness of the sheave, and the thicknesses two-sevenths of the length. This block is double scored,
the sheave is coaxed with brads, and the pin is iron, and nearly as thick as the sheave. It is used in heaving up the anchor. The vol. pages round the jeer-captains, and through the block, which is lathed to the main-malt; and the cable is fastened in a temporary manner to the vol. in several places. It is seldom used except in the largest ships of the Royal Navy.

**Block, Warping,** is made of elm or ash board, shaped like the body of a bellows; the sides or cheeks are 81 inches broad in the middle, and tapered to 12 inches broad at the ends; the back, or longest cheek, is 16 inches long, and 2 inches in thick, with 3 holes bored through the upper end to receive a leather strap; the upper cheek is 12 inches long, and 2 inches in thick, except the lower end, which is 1 1/2 inches thick, and forms the sheave-hole. The sheave is 1 1/2 inches thick, and 7/8 inches in diameter, made of lignum vitae, coaxed with brads; it is let into the cheeks one-eighth of an inch, to prevent the yarn from getting between the sheave and the cheeks. The cheeks are fastened together at the lower end with three screws and nuts; and the pin, which is iron, is fitted to the sheave, driven through the middle of the block, with a shoulder on the upper side, and clinched at the point on the lower side of the field; the upper part of the pin is tapered small, and a wooden handle riveted upon it. The cheeks have a broad chamfer round the outer edges; the inside edges, and inside of the block above the sheave, are lined with thin iron neatly screwed on, to prevent the block from wearing. This block is finished in a neater manner than blocks in general, and is seldom used but by rope-makers, to warp off the yarn into haws for tarring.

**Blocks, Single, double, or treble, in Rope-making,** are provided with a hook and thimble, and reeved with a rope, called the tackle-fall, which is used to stretch the yarn to its full extent, before the press is put on, by a capiller, or crab, at the lower end of the rope-walk. The fall is then belayed, until every yarn is hove thouth the strands and brought down, so that the rope may not exceed the circumference intended. For other blocks, see Bull's-eyes, Dead-eyes, and Euphodors. See Plates of Ships.

**Blocks, Strapping of.** A seventeen-inch block has a five-inch rope fall, and every inch in length above or under, to a twelve-inch block, has half an inch more or less sized rope allowed for the fall; a 11-inch block has a 3-inch fall; a 10 and a 9-inch block, 2 inches; an 8 and 7-inch block, 2 inches; a 6-inch block, 1 1/2 inch; a 5 inch block, 1 inch; and a 4-inch block, 7/8 of an inch. The above round iron-bound blocks are taken out of the size of the iron-fall, sufficient to bury it, except at the pin. Iron falls are from 1/2 of an inch to 1 inch in thickness, and nearly three times the thickness in width; the thickness of these should correspond to the yarn which they are to lift. The end block must have a strong fall and large iron hook, which hooks the ring of the anchor in casting. The top block should have a flat iron binding, with a strong short hook. Top tackle blocks have strong iron bindings, the upper block with a tackle-hook, and the lower block with a fairlead-hook. The fairlead, in iron-bound blocks, serves to turn it occasionally, in order to untwist the parts of the rope that form the tackle, as the mechanical power is greatly reduced thereby.

In rigging, the whole length of all the different sizes of block-falling is got upon the stretch, and hove out tight for working and serving; it is then wound and served, and cut into shorter lengths, to suit the different blocks. The falling of jeer-blocks is wound, parcelled, and served; falling of 4 inches diameter, and above, is wound and served; and all under 4 inches is only served with spun yarn; except the sprit-fall brace, bunt-line, and leech-line blocks, that are lathed under the tops, which are only served with spun-yarn over the splices, and the tail left half a fathom in length. Jeer blocks are double scored, and the double and treble blocks are strapped with a double flarp, thus: it is spliced together at the ends, and, when doubled, to be the size of the block and circumference of the yard; it is then doubled, and the block feized in the bight, with a long and short leg; the splice lying in the arc of the block.

The scores of all blocks are to be well-tarred, and the pin and sheave examined, before the flarp is put on. The block is let well into the flarp with wedges, thus: the four parts are strapped together with rope-yarn under the block, with a chock between, and the wedges are set between the breach of the block and chock. Then the flarp is nipped, with a heaver, round the block; the wedges, chock, and flarp, taken away, and the block hung upon the flake-head, or poll, and the flarp well feized together, close under the block, with nine under and eight riding turns, every turn strained tight round by a heaver, and crossed each way with two turns.

Jeer-blocks, for the main-heads, are strapped with long eyes, to receive many turns of the lathing; and the block is feized into the flarp as before, as are all feizing blocks, in proportion to their sizes. The flarps are cut agreeable to the following table.

**A TABLE of the Dimensions of Straps for Lathing and Seizing Blocks.**

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<th>Size of the Blocks</th>
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Blocks, strapped with eyes or thimbles spliced in the ends, are feized tight into the bight, and the legs left long enough to lash through the eyes, round a mast, yard, &c. as the top-fall clew lines, clue-garnets, and sprit-fall clew lines, &c.

Blocks strapped with a thimble, or hook and thimble, have the flarp spliced together at the ends. The block is fixed in one bight, for the splice to lay on the arc of the block, and the thimble in the other bight; the feizing is put on, between the block and thimble, with eight under and eight riding turns, according to the size of the block, each turn strained tight by a heaver; the turns double crossed, and the end flapt with a wall-knot crowned.

Blocks strapped with double tails, are fixed in the flarp, similar to blocks with eye-flarps; and those with a single tail are spliced 1 1/2, and served with spun yarn over the flarp.

Girtline blocks are strapped in the house, and the girtlines reeved. See Elements and Practice of Rigging, &c. vol. i.
The approach to the walls on either side was defended by a deep ditch, the earth of which had been used in constructing the rampart. During the night, guards were kept on the several towers; sentinels were established at different posts round the whole extent of the circumference; and a corps de reserve of three hundred men remained always under arms, ready to march on the first signal whereover there might be occasion for their services.

This is the most remarkable instance of a blockade we meet with in the Grecian history. Notwithstanding, however, all the precautions above related, and the seeming impracticability of flight, the intrepid garrison of Platæa, found means to elude the vigilance of their besiegers, and by a well concerted sortie, about one half of them effected an escape across the formidable works of the Peloponnesians, and reached Athens in safety. The event is related in a very interesting and circumstantial manner by Thucydides in his second book. The Romans first invited, and finally furnished the Greeks in this as well as in every other branch of scientific warfare. As early as the siege of Agrigentum, in the first Punic war, we find them dividing their forces, and forming two encampments to block up the place on both sides; connecting these encampments by lines of circumvallation, and braving within these defences every effort made to relieve the town by the enemy from without. But these lines were equally badly guarded against a sortie with those of Platæa. The Carthaginian garrison, imitating the former example, succeeded in a like manner in forming a passage by night over the intrenchments of the besiegers. (Polyb. lib. i. c. 17.) The famous blockade of Lillybaeum, during the same war, which lasted for nearly ten years, is a remarkable instance of Roman perseverance in military undertakings, although, the place being open to receiving supplies from the sea, the dilatory of the besiegers was not attended with such complete success as it deserved. By degrees, however, the Romans improved in the art of reducing fortresses by blockade. Syracuse, which the abilities of Archimedes rendered impregnable by open force, had been thus reduced by Marcellus, but for the treachery of a townman, which in a great measure abridged his labour; and all the military science and manoeuvre of the formidable Hannibal was in vain exerted for the preservation of Capua, during the twelve months the siege lasted. (Polyb. Livy.)

The works contrived by Scipio Amilias for the reduction of Numantia, exceeded in magnitude all which had been raised on any former occasion, and besides surpassing them in strength, embraced a much greater extent of ground, than the intrenchments of the Lacedæmonians before Platæa. Numantia was eighty-four furlongs, or nearly a league in circuit. Scipio, after having invested it, drew a circle including twice the area of the circumscription of the town; and this work being completed, he threw up his lines of circumvallation and contravallation at a reasonable distance from each other. Each of these fortifications was composed of a rampart eight feet thick, and ten in height, defended by sharp palisades, and flanked with towers at a hundred feet distant from each other. We can hardly comprehend or credit the immense labour of such a circumvallation but nothing can be better attested than these facts. (Appian, de Bell. Hisp.)

Among the numerous exploits of Cornelius Sulla, the blockade of Prænestæ, during his civil war with the party of Marius in Italy, is not to be reckoned the least. The confidence and audacity, with which it was kept up during a long period of time, and preferred unbroken against the bloody and almost uninterrupted attacks of several hostile armies, superior in number to his own, conveys the highest idea of
his martial abilities. It was, however, under the auspices of Julius Caesar, that this branch of military science attained its highest point of perfection among the Romans; and whether we consult the annals of ancient or modern warfare, we find no example to equal the talents displayed by that unrivalled general, in the formation of his immense works before Alesia and at Dyrrhachium, which have deservedly excited the wonder and admiration of posterity.

In the former instance, he undertook the arduous task of blocking up an army of 80,000 Gauls, doubly superior in number to his own forces; commanded by a general of the greatest military knowledge, Verecundus, and entrenched under the walls of a fortified city, situated on an enormous inaccessible mountain. Caesar's line of contravallation, extending nearly eleven miles, was composed of a ditch fifteen feet broad, and as many deep, defended by a rampart twelve feet in height, furnished with a parapet, and fortified all round by turrets, at the regular distance of eighty feet. The front of the rampart, looking towards the town, was protected by a pallisade of sharp stakes and boughs of trees, interlaced, cut sharp, and pointing outwards. Before the fosse were planted five different rows of cippi, or large branches sharpened at the ends, fixed in trenches five feet in depth, and so strongly interwoven, as not to be removed or plucked up, without infinite labour. In front of these were arranged eight other rows of Lös, or pits, three feet deep, disposed in the form of a quincunx, stuck thick with strong sharp stakes, and covered over with bushes to deceive the enemy. Before these again were scattered up and down numerous stakes of a foot in length, fastened in the earth, and headed with barbed iron hooks, called by the Romans sirmult. Farther advanced than these last, at 400 paces distance from the rampart, Caesar drew another ditch, twenty feet broad and deep, to keep the garrison at a distance, and prevent them from annoying his soldiers while employed on the contravallation. Not contented with such immense labours, he constructed the like fortifications towards the country, for the purpose of frustrating any attempts the expected Gaulish successes might make for the relief of their beleaguered countrymen. Between the lines, a space of nearly half a mile in breadth, was disposed the investing army, and their principal encampment was pitched in the most convenient situation for communicating with every part of the contravallation. Behind these defences did Caesar battle the utmost efforts of a new army of 250,000 Gauls, sent to extirpate Verecundus; and, after a series of the most brilliant achievements ever recorded, obliged the town of Alesia, and the army included within its walls, to surrender at discretion. Cæf. de Bel. Gal. lib. viii.

No less famous in history, though not productive of equal success, were the celebrated lines at Dyrrhachium, carried over a tract of fifteen miles, and within which, Caesar flattered himself, to surrounder, and compel to a capitulation, an army exceeding his own in strength, and commanded by the great Pompey. But in this instance the conqueror of Gaul had to do with Romans, and the enterprise proved too hard for his strength. Pompey, by a sudden and well-directed effort, broke through the blockade, when it was on the very point of being completed; and had he briskly followed up the advantage, might, according to Caesar's own confession, have converted his adversaries' hopes of success into total defeat. Cæf. de Bel. Civ. lib. iii.

The works thrown up by Augustus at Perusia, and the entrenchments within, which Stilico at Pescula enclosed, and destroyed an inmation of 400,000 Goths, are proofs that in after ages the Romans retained a remembrance of the means by which Caesar had triumphed at Alesia, and were still capable of practising them for the extermination of their numerous enemies. App. de B. Civ. Zozim. Propl. Marc. Chron.

In modern warfare, there are two ways of forming blockades. The frail, and most simple, consists in fortifying and occupying different positions at a small distance from the place, principally upon all the highways and avenues, and along the banks of rivers, both above and below the town. These posts are guarded by distinct corps of infantry and cavalry, who take care to keep up an easy communication with one another, and to prevent all supplies of provisions from being conveyed into the fortresses blockaded. This, by degrees, reduces the garrison to great necessity, causes them to desert, and frequently occasions such murmurings and mutinies among the inhabitants, as to force the governor to a premature capitulation. Such a species of blockade is extremely tedious; for it is almost impossible to prevent provisions from being sometimes introduced in small quantities, and reviving the courage and patience of the besieged. But it is of advantage, after having thus for some time invested a town at a distance, to convert the operations into a regular siege, as the garrison are then generally unpriovided with the materials necessary for protracting their defence.

The second kind of blockade is much closer and nearer. It is effected by means of lines of circumvallation and contravallation, between which the army lies encamped, and is adopted only in particular cases. If, for example, after the loss of a battle, the enemy should retire into a town which is well known not to be over-abundantly supplied with provisions, and which, it is presumed, must be obliged to surrender in a few days. But as it would be the height of imprudence in a beaten general to expose the remains of his army to certain ruin, by shutting them up in a place so ill circumvallated, (a fault, nevertheless, committed by marshal Warwick in 1756, after the loss of the battles of Baflano and Rovereto, and which all the importance attached to the preservation of Mantua can hardly excuse), this kind of blockade is seldom put in practice.

It is rarely a fortresses is reduced to surrender, by the mere process of blockade; but sieges are often greatly accelerated by it, on account of the scarcity of necessaries, whether for the subsistence or defence of the garrison, which, in a greater or less degree, is its never failing consequence.

The blocking up of towns by corps principally of cavalry, posted in the neighbourings places of strength, is more convenient than any other method; because the troops forming the investiture, are not so fatigued as they would be in occupying open positions, and unfortified villages. In the latter case, it is necessary to be always on the alert, not only against the garrison, who, by a well directed sortie, may interrupt the communication, and cut off some of the detachments; but, against the enemy from without, who, by secretly marching a strong force, may surprize, beat up one of the besieger's quarters, and introduce a convoy, or reinforcement into the town. On account of these inconveniences, it is essentially necessary to ascertain the quantity of provisions and stores contained in the magazines of a place blockaded, in order to compute how long it may hold out, and to have an army in the field sufficiently strong to protect and cover the blockade. For, should the enemy succeed in surprising and cutting off one detachment, its defeat might occasion the successfull defention, or capture of all the others, before they could assemble in competent force to repulse the collected attacks of an enterprising and vigorous adversary. (Fauquieres, Mem. chap lxxxii. p. 377.)

It is chiefly, since the contest for the imperial succession 12
in 1792, that the expedient of blockading fortresses of the most formidable strength, has been preferred to the less tedious, but more destructive plan of carrying them by a regular siege. In the latter case, every outwork belonging to the place must be taken, or battered down inch by inch, with an immense loss to the besieging army, and frequently at the hazard of its being forced to the blockade. On the other hand a blockade, well kept up, must, sooner or later, reduce the garrison to the last extremity for want of provisions, or ammunition. The number of troops engaged in the enterprise is comparatively small. The losses of men, necessarily considerable in the frequent and bloody attacks on the fortifications of a well defended place, is entirely avoided; and the major part of an army is still at liberty to continue its advances into the heart of the enemy's country, and to follow up a previous success, without the tedious process of flapping to reduce every strong hold in its way. The inconveniences which might otherwise result from leaving a hostile garrison in the rear, are, in a great measure, obviated, if the blockade is kept up with proper alacrity and deftness. The enemy within the town have enough to do to attend to procuring provisions for themselves, without troubling the convoy's defined for the main army of their besiegers; and by this means, the operations of a campaign, so far from being retarded, are frequently accelerated, by having recourse to a blockade. Had the allied powers, instead of mauldering away their armies before the walls of Mayence and Valenciennes, and afterwards completing their ruin, by the impotent and bloody attempts upon Dunkirk and Maubeuge, adopted this method during the summer of the year 1793, they possibly might have made greater impression on the territory of the French republic. Had, on the contrary, the generals Jourdan and Pichegru endeavoured, in 1794, to carry Landrecy, Valenciennes, Condé, and Luxembourg, by regular sieges, instead of contenting themselves with leaving those fortresses in a state of blockade, it is very evident that the successe of the French, during the latter part of that memorable campaign, would have been by no means so rapid and important as they actually turned out.

When the directory formed, in 1796, the resolution of invading Germany, their armies made no attempt to attack in front the towns of Mannheim, or Mayence, but proceeded to effect a passage over the Rhine, at a distance from those places; and, instead of confining their time, and wafting their strength in long and tedious sieges, they advanced rapidly into Suabia and Franconia. They wished to become matters of Ehrenbreitstein, Mayence, Mannheim, and Philipburg, by the same method by which, in 1794, they had recovered the towns of Landrecy, Oesefroy, Valenciennes, and Condé, and to achieve, by a single manoeuvre, that which would, in former times, have been the result of two or three successive campaigns. Pursuant to this system, they forbore to undertake any siege, and ventured to leave fortified places at a great distance behind them. Their generals therefore, that by carrying the war away from those towns, they should, by force, detach the enemy from them; and judged that if they could obtain and keep possession of the country situated beyond those fortresses, they would, in the end, fall into their hands perfectly unarmied, and without having cost them either blood or treasure. They proposed to acquire the fortified places, by making themselves masters of the surrounding country; as formerly these countries were secured by getting possession of the fortified places. These had hitherto been the means of conquest; they now meant to make them its result. This method, by which the French acquired so great a number of fortified towns in 1794, met not with the same success as in 1795; but their failure did not arise from the strong places which they left behind them; and as these had not impeded the progress of Jourdan and Moreau, neither were they the causes of their first disasters. If the troops of the republic had been victorious at Amberg, or at Wurtzburg, the fortresses of Ehrenbreitstein, Mannheim, Mayence, and Philipburg, would, no doubt, have ultimately fallen, as Luxembourg did in 1795. Hilt. of the Camp. of 1796, Lond. 1796. 8vo.

As a proof of the little danger attending this method of carrying on war, we shall only add, that the garrisons of Philipburg and Mayence remained so closely blockaded by a small part of the French forces, as not to be capable of affording the archduke any essential assistance in cutting off the retreat of the invaders, notwithstanding the rapid and disorderly manner in which more particularly that of Jourdan was conducted. During the same year, Buonaparte, although the reduction of Mantua was the principal object of the campaign in Italy, did not for a moment desist in his other operations in the field. On the contrary, this did not hinder him from carrying his arms into the middle states of that beautiful country; from laying Parma and Modena under contribution; obliging the pope and duke of Tuscany to agree to a neutrality; forcing the English from Leghorn, and fighting the imperialists almost incessantly, on every point of a very extended line, to the destruction of no less than four of their armies successively detached against him.

Notwithstanding the tardy proceedings of a blockade are far from being congenial to French vivacity, yet, where the strength, or peculiarly inaccessible situation of a fortress, have precluded all hopes of success from a coup de main, they have often had recourse to this means. That they are policed of sufficient preservation on these occasions, the three blockades of Luxembourg, Mantua, and Ehrenbreitstein, in 1795, 1796, and 1798, are convincing proofs.

The most famous blockades which, during the last century, have distinguished the military history of Europe, are the following: That of Prague by the Austrians in 1742, is renowned for the gallant defence made by the French forces under the marquises Belflise and Broglie, for the space of five months, during which time they were driven to the last necessity for want of provisions; and for the daring retreat by which the former of these generals preferred the remains of his army from falling into the hands of the enemy. The late war has produced several remarkable instances. The two already mentioned of Luxembourg and Ehrenbreitstein reflect equal honour on the besiegers, whom no obstacle could deter from continuing, with invincible patience, their plan of reduction; and the garrisons, whose resistance was in the highest degree meritorious.

In 1796, public attention was everywhere engrossed by the blockade of Mantua, which gave occasion for the utmost exertion of that military talent by which the first soul of France has so eminently distinguished himself, and for the veteran marshal Wurmser to add fresh laurels to those he had already acquired, and draw even from his conqueror a flattering acknowledgement of the ability he had displayed in its defence. The different exploits of these generals; the entire destruction of four imperial armies, in vain attempts to relieve the place; the bloody battles of Caliglione, Roveredo, Arcle, and Rivoli, the result of those attempts; and the conquest of all Italy by the French,
French, the consequence of its fall, secures to the blockade of Mantua everlasting fame.

The conduct of general Maffia, when blocked up in 1620 within the walls of Genoa, may justly be compared with the most glorious actions of the war. Surrounded on all sides by enemies; cut off from every hope of succour by land or sea, and almost destitute of provisions or ammunition, he maintained, for sixty days, a post the Austrians had flattered themselves to reduce by famine in six; destroyed immense numbers of them in his different attacks on their posts; and having defended the place to the last extremity, obtained a negotiation (for Maffia would not suffer the word capitalization to be invested in the treaty), equally honourable to himself, and advantageous to his country. It was advantageous, inasmuch as it obliged the enemy to divide and scatter their forces, entangle themselves among the defiles of the Alps, and, besides losing a number of men before Genoa, drew them to such a distance from what the French government intended to make the principal seat of action during the campaign, as enabled the Austrians to push the great St. Bernard unopposed, occupy the plains of Piedmont, throw himself in the rear of general Melas, and, by the battle of Marengo, extinguish at once the hopes of the Austrians in Italy.

**BLOCK-battery**, in the *Military Art*, denotes a wooden battery on four wheels, moveable from place to place, whereby to set en barbe, or over the parapet; sometimes also used in galleries and cafemates, where room is wanted.

**BLOCK-book**, a term used in *Heroldry*, to express a bundle or bunch of knee-holm, or ballad myrtle, formerly used by butchers to clean the surface of their chopping-blocks, which forms a part of the armorial enigmas aligned to the company of butchers of London.

**BLOCK-carriage**, in the *artillery*, denotes a carriage used for conveying mortars and their beds from one place to another.

**BLOCK-house**, in the *Military Art*, a kind of wooden fort or battery, either mounted on rollers, or on a wheel, and serving either on the water, or in some counter-scars and counter-approaches. The name is sometimes also given to a brick or stone fort, built on a bridge, or the brink of a river, serving not only for its defence, but for the command of the river, both above and below. Such was that noted block-house anciently on the bridge of Delft, since demolished on enlarging the bridge.

**BLOCK-printing.** See *PRINTING*.

**BLOCKING**, in *Middle Age Writers*, denotes a kind of burial used for persons dying excommunicated.

**BLOCKINGS, circular**, in *Architecture*, are bases to the dome, represented in the *Plate of Archit.* (title *Baglioni*) QQ; which, by their apparent solidity, seem to strengthen the dome, and at the same time taking from its height, add a peculiar gracefulness to its appearance.

**BLOCKINGS, square**, are represented at S (title *Baglioni*), in *Plate of Archit.* Thence, when enriched with base and cap, obtain the appellation of *pedestals*.

**BLOCKING-course.** See *COURSE*.

**BLOCKLAND, Anthony de Montfort, in Biography*, a painter of history and portrait, was born of a noble family at Montfort, in 1532, and acquired his art in the school of Francis Floris, whose manner he always followed. By endeavouring principally to imitate the taste of the Roman school in design and composition, he became a distinguished artist. He well understood the principles of perspective, and he disposed his figures with judgment and accuracy. The style of his colouring was agreeable, and his pencil mellow. He designed every object after nature, and gave to the contours of his figures considerable elegance. His genius was best adapted to grand compositions, of which he designed many, both at Delft and Utrecht. Several of his works, particularly a Venus, and the history of Joseph and his brethren, are in so good a taste, that they seem to have been painted by a master educated in the school of Florence. Pickerington.

**BLOCKLEY, in Geography*, a township in Philadelphia, in the county of Pennsylvania.

**BLOCKY, among Jewellers, a name given to a diamond when its fides are too upright, by its table and collet being larger than they ought to be.**

**BLOEMARTE, Abraham, in Biography**, the most distinguished of a family of Dutch artists, was the son of Cornelius, an architect, engineer, and excellent flattnary of Dorstrecht, who, during the troubles of the Low Countries, removed to Utrecht. He was born at Gorcum in 1573, and died chiefly at Utrecht, where he probably died, A.D. 1657.

In youth, he diligently copied the designs of Francis Floris; but the excellence to which he attained was chiefly owing to his own genius, which enabled him to acquire a style of painting peculiar to himself. He painted history pieces, faced and proune, landscapes, and animals; but though he possessed a facility of invention, and a free-spirited touch, and well understood the chiaro-fcuro, his style and style are said to have too much of the Flemish, and he is charged with having indulged his own fancy, and deviating from nature in his figures. The historical picture of the death of Niobe and her children, gained him great reputation; the figures in the composition being as large as life. Some slight, matterly etchings are attributed to this artist, which are executed in a manner imitating drawings with a pen, from his own compositions. He also published some spirited chiaro-fcuros, the outlines of which, contrary to the usual custom, were not cut on blocks of wood, but etched upon copper. Of this kind are two large prints by him, representing Moses and Aaron, both sitting figures. He left four sons, all artists. His son Frederick worked chiefly from his father's designs, and imitated his style in his etchings and chiaro-fcuros. He also, conjointly with his father, made a large drawing book, consisting of figures, animals, landscapes, &c. *Henry* and *Adrian*, were both painters; and they are also mentioned as engravers: the most eminent, as a painter, was the latter.

**Cornelius**, the most distinguished as an engraver, was Abraham's younger son, and born at Utrecht, in 1603. Devoting himself wholly to the art of engraving, he first studied under Crispin de Pau, and then went to Rome, where he died, at a very advanced age. The manner of engraving adopted by this artist was original, and the source of that style in which the best French masters excelled, or those of them who worked merely with the graver. He covered the lights upon his distances, and the other parts of his plates which required tinting, with great care: whereas, before his time, the lights on the distant hills, trees, buildings, or figures, had been left quite clear; and by so many white spots, scattered in various parts of the same design, the harmony was destroyed, the subject confused, and the principal figures prevented from relieving with any striking effect. By this judicious improvement, Bloemaert gave to his prints a more clear and finished appearance, than all the laboured attempts even of Jerom Wierix had been able to produce. He drew correctly; but as he executed entirely with the graver, the extremities of his figures are heavy; and his heads are not always beautiful or expressive. In the mechanical part of the work few have excelled him,
BLOomen, Norbert Van, brother of the preceding, was born at Antwerp in 1672, and being allured by the reputation of his brothers to visit Italy, he there devoted all his hours to study. He principally painted conversations and portraits; but the colouring of his pictures is too glaring, and wants more truth and nature. Pilkington.

BLOIS, in Geography, lat. Blesa, a city of France, was, before the revolution, the capital of "Le Blaisois," the fee of a bishop, suffragan to the archbishop of Paris, and formerly the residence of the kings of France; but is now the capital of the department of the Loir and Cher, and divided into east and west Blois, the former containing 5400 inhabitants, and its canton 12,885; and the latter 7912, and its canton 11,862: the whole territory comprehends 2373 kilometres, and each canton has eight communes. Blois is seated in a pleasant country, on a small eminence near the river Loir, over which is a handsome stone bridge. The caile is the principal ornament of the city, and has, on the first view, the appearance of two distinct buildings, which are joined by a pittance cut out of a rock. That part of the caile, which was built by the duke of Orleans, instead of that which he demolished in 1652, is a lustrous, but unfinished edifice. The caile before it, where the church of St. Saviour is situated, is very large, and was formerly used for tournaments. The adjoining gardens are magnificent and beautiful. On every gate of the city is exhibited an image of the Virgin Mary, who is thought to have delivered the inhabitants from the plague in 1633. In this caile, famous as the birth-place of Louis XII., are shown the chambers where the duke of Guise, and his brother the cardinal, were murdered by order of Henry 111., December 23, 1587. The church of St. salon is the cathedral, which is a beautiful structure. The front of the Jésuit's college is decorated with the Doric, Ionic, and Corinthian orders of architecture. About three quarters of a mile from the city, water in great abundance descends through the cleats of a rock, in a large aqueduct, by which it is conveyed to a reservoir near the walls, and it is then distributed by leaden pipes to the several parts of the city. The trade of Blois consists chiefly of wine and brandy; though it has manufactures of serges and ticken. Several kings have kept their courts at Blois, and the French language is spoken in the greatest perfection by its inhabitants. N. lat. 47° 35' 20". E. long. 1° 20' 10".

Blois, Peter of, Petrus Bloentch, in Biography, an eminent writer of the 12th century, was born about the year 1120 at Blois in France, whence he derived his name; and as his parents were opulent, he enjoyed all the necessary means of a learned education. In his youth he studied in the university of Paris, where he manifested a strong inclination to poetry, and in his more advanced life, he applied with peculiar ardour to the study of rhetoric. At Bononia, in Italy, whither he removed from Paris, he acquired eminence by his knowledge of the civil and canon laws; and he appeared, by his writings, to have cultivated an acquaintance with medicine, and with various branches of the mathematics. But the principal object of his attention, and in which he is said to have particularly excelled, was theology, or the scholastic theology of the times, which consisted in vain attempts to prove and explain the numerous absurd opinions, which prevail in the church, by the subtleties of Arilhotelian logic. To him some have ascribed the first use of the term "transubstantiation," which was soon after adopted in the church of Rome. Being appointed preceptor to William II. king of Sicily, A.D. 1167, he obtained the custody of the privy-seal, and, next to the archbishop of Palermo, the prime minister, he had the greatest influence in all affairs. However, his power...
power soon terminated; for, upon the banishment of the archbishop, A.D. 1168, he left the court of Sicily, and returned into France. From France he was invited into England, by Henry II., who employed him as his private secretary, made him archdeacon of Bath, and gave him some other benefits. After having spent a few years at court, he conceived a disgust at that mode of life, and retired into the family of Richard, archbishop of Canterbury, who made him his chancellor, about A.D. 1176. After the death of this prelate, A.D. 1183, he acted as secretary and chancellor to archbishop Baldwin, his successor; and was deprived by him on an embassy to Rome, A.D. 1185, in order to plead his cause before pope Urban III., in the famous controversy between him and the monks of Canterbury, about the church of Hackington. When Baldwin departed into the Holy Land, A.D. 1190, he was involved in various troubles in his old age, the caustics of which are not distinctly known, and died about the end of the 12th century. From his works, which may be justly reckoned among the most valuable monuments of the age in which he flourished, and some of which may even now he read with profit, he appears to have been a man of approved integrity and piety, as well as of a lively inventive genius, and uncommon erudition. He is said to have dictated letters in Latin to three different seres, on different subjects, and to have written a letter in the same language himself, at the same time. His printed works consisted of 183 letters, which he collected together at the desire of Henry II.; of 65 seres, delivered on various occasions; and of 17 tracts on different subjects; "Opera P. Bloher. Paris., edit. A. D. 1667," fol.; and afterwards printed in the Bibliotheca Patrum, tom. 24. Cave Hist. Lit. vol. ii. p. 333. Henry's Hist. vol. vi. p. 147.

BLOMZYL, in Geography, a town and port of Oversby, situated at the mouth of the Steenwyk, or Old Aa, where it enters the Zuider sea, with a harbour capable of containing 250 vessels; defended by six bastions, and erected by the Dutch, at the commencement of their republic, to defend them from the invasions of the Spaniards. N. lat. 52 45'. E. long. 5 45'.

BLOMARY, or BLOOMARY, the first forge in an ironwork, through which the metal passes after it is melted out of the ore. (See Iron.) They are also called bllmary-barthils.

BLOMBERG, in Geography, a town of Germany, in the circle of Welfphalia, and county of Lippe, which obtained its first privileges, in the beginning of the 14th century, from count Simon I.; 8 miles S. E. of Lemgow.

BLOMESHOLM, a manor of Sweden, in the district of Bohus, about 3 Swedish miles from Stromlottad, in which is a very ancient monument, containing of large stones, set up perpendicularly, and arranged in the form of a ship.

BLONAI, a barony and castle of Switzerland, near Vers, and about 1 mile from the lake of Geneva. BLOND, LE, CHRISTOPHER, in Biography, a painter, was born in 1670, but little noticed in the more early part of his life. He became known at Rome in 1714, and established his reputation in Italy, as a good painter of portrait in miniature. At Amsterdam he distinguished himself by painting small portraits, for bracelets, rings, and snuff-boxes, first in water-colours, with a very lively and natural colouring, and afterwards in oil. From the Low Countries he came over to England, and projected a new manufacture for impressing colours on paper with copper-plates, which promised to be advantageous, but in the end proved detrimental to himself and his associates, to which his own diffusive life and manners very much contributed. His scheme was to copy the most capital pictures in England, of the greatest masters, so as to give his prints the appearance of paintings in oil. Many of his prints were well executed, and still exist, and are held in estimation. It is said, however, that he was not the original inventor of this method of managing colours; but that he took it from Lufman, and others, who with equal capacities and more diligent conduct, had undertaken it before him, but failed of success. Pilkington.

BLONDDEL, DAVID, a French Protestant minister, eminent for his acquaintance with ecclesiastical and civil history, was a native of Chalon in Champagne, admitted minister in 1614, and settled at Honnay near Paris. His first work in favour of the Protestants was printed at Sedan in 1619, under the title of "Modeste Declaration, &c." or, "A Modeste Declaration of the sincerity and truth of the reformed churches in France:" and intended as a reply to the invectives of the party of the bishop of Luçon, afterwards cardinal Richelieu. This work established his reputation among the Protestants, and occasioned his being much employed in their prisons. He was not distinguished as a preacher; and his style, as a writer, was perplexed, and incumbered with parentheses; but his judgment was penetrating, his memory tenacious, and his erudition extensive. As an honorary professor, with a pension, to which office he was appointed by the syndics of Charlestown in 1645, he had opportunity to devote his time to literature; but though he undertook to refute Baronius's anathemas, it does not appear that he did much besides writing a few notes in his own copy of the work. His works were "Explications on the Ecclesiastic," a treatise concerning "The Primacy of the church," "Pseudolitouris et Turrianus Vapulantes," against the Decretal epistles; a "Treatise on the Sibyls," disproving the truth of their oracles, and refuting the ancient practice of praying for the dead; and a treatise "De Episcopis et Prebendaris." By his treatise against the story of pope Joan, which he rejected as fabulous, he offended some Protestants, who did not wish to be deprived of this topic of satire against the Roman church. Among Blondel's works on civil history, we may reckon his "Genealogy of the kings of France against Chifflet," written in Latin, and printed at Amsterdam in 1642, 2 vols. fol. which is said to have been undertaken at the desire of chancellor Seguier; and his piece "De Formula Regniat Christo." On the death of Gerard Vossius, he was chosen to succeed him as professor of history in the school of arts of Amsterdam, and took possession of his office in 1650; but his affluence in the prosecution of his studies and change of air, occasioned the loss of his sight, after which, it is said, that he dictated his work intitled "Genealogy, &c." At Amsterdam his situation was rendered uneasy by a charge of Arminianism; and he died in 1655. Gen. Dict.

BLONDDEL, FRANCIS, an eminent mathematician and military engineer, was born in 1617, at Ribemont in Picardy. In 1651, he was travelling governor to the young count of Brie and, after a tour of three years he published an essay of the manner of erecting a bridge over the Charente at the town of Saintes. In 1660, he became member of the Academy of Sciences; and in 1670 he was honoured
honoured with letters patent from the king for the superintendence of all the public works in Paris. To him were intrusted the repair and decorations of the gates of St. Anthony and St. Bernard; and the gate of St. Denis, one of the most unfinished pieces of French architecture, was designed and executed by himself. In the office of director and prosector of the Academy of Architecture, established in 1671, he gave "A Course of Architecture," which was published in large folio, in 1668, and which was long considered as a standard book. In 1675, he presented to the king his treatise "On the art of throwing bombs," printed in 1685, 4to., and "On a new method of fortification," which procured for him the rank of marshall de camp. His other works were "Notes on the architecture of Savot," the "Resolution of four principal problems of architecture," Paris, 1676, fol.; "A Course of mathematics," Paris, 1683, 4to.; the "History of the Roman calendar," Paris, 1682, 4to.; and a "Comparison between Pinard and Horace." He also communicated several ingenious pieces to the Royal Academy of Sciences, which are inserted in their Memoires, particularly for the year 1666. He died at Paris, Feb. 1, 1686. Gen. Dict.

**Blondel, Francis.** was admitted doctor in medicine at Paris, the place of his birth, in 1632. As he had acquired considerable reputation as a scholar, he was engaged, on the death of Chartier, to assist in completing his magnificent edition of the works of Hippocrates and Galen, three volumes of which were left uninished. He was an avowed opponent to the admission of animony, and of all chemical preparations, into the practice of medicine, coinciding in that respect with his contemporary and coadjutor, Guy Patin. In 1658, he was made dean of the faculty of medicine, which office he held the following year. In 1665, he published "Statuta facultatis medicae," Paris, 12mo.; and in 1665, an epitaph to Aliot, "De cura carcinomatis, abique ferro et igne," 4to. Aliot used for the purpose a medicine prepared from the arffenicum rubrum, diffolved in aqua foris, and precipitated with the acetum furati. The precipitate was then washed by repeated affulgions of warm water, and its Curtis further mitigated by burning spirits of wine, in which it was immered, until the powder became perfectly inipid. Blondel died Sept. 5th, 1682. Haller. Bib. Chirurg. et Med. Eloy. Dict. Hist.

**Blondel, Francis.** born at Liege in 1613, studied medicine at Cologne, and was for some time physician to the elector of Treves. On the death of that prince, in 1652, he went to Aix, and was appointed physician and superintendent of the baths in that city. In 1662, he published "Lettre de Francisc Blondel a Jaques Didier, touchant les eaux minerales chaudes d'Aix, et de Borret, et les eures qui fe font faites par fou auge," Brux. 12mo.; and in 1671, "Thermarum aquiligranum, et porcetanarum descriptio," which was reprinted in 1688, in 4to. with engravings, and considerable additions. He died in 1703, much regretted by the inhabitants of Aix, having, by his writings, to recommended the waters, as considerably to increase the repute of patients there. Eloy. Dict. Hist.

**Blondel, James Augustus.** of a French family, but born in England, and made licentiate of the college of physicians in London, about the year 1722; published, in 1727, "The strength of imagination in pregnant women examined, and the opinion that marks and deformities in children arise from thence, demonstrated to be a vulgar error," 12mo. Though Dr. B. had not put his name to this work, yet his neighbour and colleague Dr. Turner, discovering that he was the writer, and considering it as an attack upon what he had said on the subject, in the 12th chapter of his treatise on the diseases of the skin, in which he gives numerous influences of marks and deformities in the bodies of children, implored on them by the disturbed imaginations of the parents, thought himself called upon to explain and to defend what he had thus advanced. He therefore, in an appendix to his treatise on gleet, published the following year, gave some additional objections on the subject, in further proof of the influence of the affections of the mother over the fetus in utero. To this Dr. Blondel replied, in 1729, and with much humour, as well as argument, flewed the absurdity and fallacy of the opinion maintained by his antagonist; who, if he infidently on his point, must admit that animals, and even plants, are under the influence of the same affections; their facts being frequently produced equally defective and monstrous as those of the human species. The answer is entitled, "The power of the mother's imagination over the fetus examined, in answer to Dr. Daniel Turner's book, entitled, 'A Defence of the 12th chapter of his treatise, de morbis cutaneis.'" This drew a more serious reply from Dr. Turner, addressed immediately to his opponent, under the title of "The force of the mother's imagination upon the fetus in utero still farther considered, in the way of a reply to Dr. Blondel's last book, by, &c." 1732, 8vo. But though the doctor supports himself with the authority of Schenckius, Hildanus, Horlius, and many other collectors of wonderful and extraordinary stories, the good sense of his antagonist prevailed, and he has the merit of having contributed very largely towards removing the prejudices on this subject, which had prevailed for ages, and, with them, the foolishness and anxiety which never failed to torment the minds of such women as had the misfortune, while pregnant, to see or hear anything, strongly affecting their imaginations, lest their offspring should be born with some defect or deformity. It is now pretty generally known, that no such consequences follow, and that the few cases in which children are produced defective, with redundant parts, or in any way distorted, happen indifferently, where the mother has or has not, if the course of her pregnancy, received some shock or alarm. The power of the imagination in marking, distorting, or deforming the fetus in utero is vanished, with the witches, ghosts, and hobgoblins, formerly equally objects of delight and terror. Haller. Bib. Chir. et Med. Pract. Eloy. Dict. Hist.

There is another writer of the name mentioned by bibliographers.

**Blondel, Jacques.** surgeon of Liege in Flanders. He translated the Chirurgia militaris of Nicolas Godin, under the title of "La Chirurgie militaire, tres utile a tous ceux qui veulent fuivre un camp, en temps de guerre, parallèlement a tous autres en condition peineuse ou dyfenterrique, ecrite en Latin, par Nic. Godin," Anvers, 1558, 8vo.

**Blondel, John Francis.** was born at Rouen in 1705; and was known, not only as architect to the king, member of the Academy of Architecture, and royal professor of the art at the Louvre, but by several useful publications; as "A Discourse on Architecture," 12mo.; "A Treatise on the decoration of buildings," 1738, 2 vols. 4to.; "A Course of Architecture," 6 vols. 8vo. 1771—1773. The two last were published in 1777, 3 years after his death. M. de Baflide also published, in 1774, a posthumous work of Blondel, entitled, "L'homme du monde éclairé, par les Arts," 8vo. 2 vols. Blondel was the author of the articles relating to architecture in the Encyclopedic. He died Jan. 9, 1774. Encycled.

**Blondin, Peter.** a native of Picardy, born Dec. 15th 1682, was a disciple of Tournefort, by whose advice he travelled over Picardy, Normandy, and the ile of France, in order to improve himself in botany. In the course of his excursion, he...
diffused upwards of an hundred and twenty plants, which had not been before described, and several others, which had been supposed peculiar to America. In 1708, he was admitted doctor in medicine at Rheims; and, in 1712, he was received into the French academy, in quality of cme of M. Reneaume, an honour he did not long enjoy, being cut off in the following year, by an inflammation of the lungs. M. Fontenelle, who spoke his funeral eulogium, attributed to him a small work, published in his lifetime, in which he had made some corrections in Tournefort's arrangement of certain species of plants; he also says, he left some curious memoirs on the subject of botany, intended for publication, and which were prevented being printed by his premature death. But his name does not appear in Haller's Bib. Botan. nor in the catalogue of botanical works contained in the splendid library of sir Joseph Banks, lately published by Dr. Dryander. Eloy Dict. hill.

BLONDVAURY, in Geography, a town of France, in the department of the Charente, 5 leagues east of Confolens.

BLONDUS, of Biondi, Michael Angelo, in Biography, was born at Venice, May 4th 1497. After studying under Augustus Niphus, a celebrated teacher of that time, he settled at Naples. He was a voluminous writer. The titles of the most distinguished of his works follow. "Epitome ex libris Hippocratis de nova et prima arte medendi deque dictione decreto," Rome, 1528, 1545, 8vo.; "Libellus de morbis purorum," Venetii, 1529, 8vo.; "De partibus iuuenis sectatis, et medicamento aqua, super invento. In plurimarum opusculorum de origine morbi Gallici, deque ligni ladicil ancipitri proprietate," Venetii, 1542, 8vo. For wounds made with a cutting instrument, and recently inflected, he recommends the application of simple water, as a most valuable and useful remedy. He does not admit that the venereal disease was a new complaint, originating in the West Indies, but believes it to have been known to Hippocrates, and other ancient physicians, and described in their writings. He had used the lignum facatum in his attempts to cure the disease, but ineffectually; the disease returning, he says, after discontinuing the medicine, with increased violence. He placed his principal dependence on mercury, but does not give the rationale, or method of using it. This work is inserted by Conrad Geiner in his "Collectio Serpentorium opti

BLONSK, in Geography, a district of Poland, belonging to the territory of Warsaw, in the palatinate of Czerek, or Mazovia.

BLOOD, is the nutritive fluid of animals. In the human subject it circulates through the arteries and veins (see Circulation), being of a red or black colour in the former, and of a yellow or black colour in the latter; it is of considerable cohesion; of a slightly saline taste, and peculiar smell; its specific gravity is estimated at 1.0527. When blood is drawn into a bottle, it shrinks into a transparent, jelly-like mass; and then spontaneously separates into a solid, heavier substance termed the coagulation, cruer, or the clot of the blood, and a supernatant pale liquor called the serum. If the coagulation of the blood be washed with water, all the red colour may be washed out of it, and a certain white substance will remain. This substance, which did exist in a state of subtle fluidity, so as to be capable of permeating the minute vessels of the body, and which thus spontaneously concretes, has been, therefore, called the coagulating lymph of the blood. If the blood be flourished with a needle, this substance concretes in a fibrous form round about it, and it was in consequence formerly termed the fibrous part of the blood. By this latter denomination, it is also now generally known and described. Thus it appears, that there are three parts readily distinguishable in the blood; the serum; the fibrous part or basis of the coagulation; and the colouring matter; to the more particular consideration of these we now proceed.

Of the Serum.

The Serum of the blood is of a light greenish yellow colour, and its mean specific gravity is estimated at 1.0287. If it be heated to about 163° of Fahrenheit's thermometer, the fluid serum becomes converted into a tremulous solid substance; which, being cut in pieces and compressed, there can be squeezed out of it a muddy and somewhat glutinous fluid, which is termed the coagulability of the blood. If the remainder be boiled, part of it will be found to be incoherent; and this has all the properties of albumen, or that infusible matter which is contained in the white of the egg; for an account of which, see the article Albumen. That part of the serum which is dissolved in boiling water, becomes a jelly, if the water be evaporated to a certain degree, and it is thus cooled to become cold. It is again soluble, if more water be added. This modification of animal matter is now termed gelatine, and to that article the reader is referred for a more full account of its properties. The coagulability of the blood appears to contain albumen mucilage, but no accurate chemical examination has yet been made of it. The serum of the blood turns the syrup of violets green; which effect is owing to soda, that is contained in it. If coagulated serum be heated in a silver vessel, the silver becomes blackened by being converted into a perilur; in consequence of the serum containing sulphur. If the particles of the serum be dissolved in boiling water, and afterwards crystallized, they are found to be carbonat of soda, muriat of soda, phospate of soda, and phospate of lime. Of the Fibrous Matter of the Blood.

This matter spontaneously concretes in open and in close vessels, in the temperature of the animal, or in a much lower degree of temperature, though with some little variation as to the time in which the coagulation happens. Dilution of albumen by water prevents its coagulation, even by those chemical agents which suddenly and firmly coagulate it in its natural state, such as heat, spirit, and acids. No dilution of the blood by water has hitherto prevented even the spontaneous coagulation of its fibrous part. The basis of the coagulation, or fibrous part of the blood, is found to be a whitish solid chalybic substance, of greater specific gravity than the serum. This substance, which is insoluble in water or alcohol, and which resembles the muscular fibres in its chemical properties, has been denominated by the French chemists fibrine, or fibrina, to which article the reader is referred for a more particular account of it. It is right however here to remark, that chemical analysis ultimately converts all animal substances into azot, hydrogen, and carbon; and that the proportion of the former is greater in the fibrous part of the blood than in albumen, or perhaps in any other animal compound.

Of the Colouring Matter of the Blood.

The colouring matter of the blood has an attraction to water and dissolves in it, forming a transparent red liquor. This attraction is perceived in macerating flesh in water; for the colouring part, which is specifically heavier than any other part of the blood, and readily sinks in the serum, yet rises up and becomes dissolved in the water. The watery solution of this part of the blood turns the syrup of violets green, and contains both soda and albumen. If the red part
part of the blood be incinerated by fire, it is found to contain much iron, which Fourcroy and Vaquelin discovered was contained with phosphoric acid in the flate of sulphonate of iron: and this is the only part of the blood which is found in analysis to contain any of that metal. Fourcroy examined the blood of the fetus, and found that the colouring matter was darker and more abundant than in the adult subject. He also found that the blood of the fetus contained no fibrine, but much more gelatine than in the adult.

The colouring matter of the blood is found, by examination with the microscope, to be composed of very minute globular particles. They were particularly attended to by Locuvenoock, and afterwards examined and described by others, chiefly by Senac, Hewfon, and Fontana. They are so small as scarcely to admit of an accurate examination in this climate by the common microscope. This attention will probably be readily admitted, if it be granted that they do not exceed a 200,000th part of an inch in diameter; yet such dimensions may be estimated as the average effimate of their size, drawn from the accounts of various observers. Haller says, that he saw them as large as peas by the polar microscope, and it was by the aid of that instrument that we are enabled to give the following account of them. A drop of blood, much diluted with water, was put upon a micrometer or piece of glass, ruled by a diamond in squares of a 12th an inch, and put before the lens of the polar microscope. The squares were magnified upon the screen to eight inches diameter. The globules of the blood were seen undulating to and fro in vast numbers; they all appeared exactly of the same size; and a few which were separated from the rest were attentively examined. These had all the appearance of globules; they were circular in their thick, and were regularly illuminated on one side, and shaded on the other, with the prismatic colours arranged in the middle or greatest convexity; the violet being next to the light, and the red next to the shade. On varying the focal distance of the lens, indeed, an alteration of appearance took place, some shading appeared in the middle just in the manner represented by Fontana. Upon again varying the position of the lens, the globules appeared as at first. This shadowy appearance in the middle probably led Mr. Hewfon to suppose that they contained a central solid particle. It is, however, generally admitted, that the colouring particles of the blood are spherical; and if their size be calculated from the preceding account, they will be found to be less in diameter than the 200,000th part of an inch.

If, for instance, the square of a 12th of an inch be magnified to a square of eight inches, and the globules appear 12th of an inch in diameter, then 64 may be placed in a line on one side of the square, and 64 x 64 = 4096, is the number that will fill within that surface. Now, this is square is but 12th of an inch, magnified on the screen to a square of 8 inches; then, multiply 4096 by 8, and it gives 24,380, as the number of these globules which would fill in the square of one inch.

The preceding account of the blood imperfect as it is, yet affords as much satisfactory information. We perceive that there are contained in the blood, in a state of subtile fluidity, the materials of which the body is constructed, and which are capable of becoming solid fibres of various degrees of solubility. We find in it also that aqueous liquor which fills all the interstices of the solid parts. It is true, that we find in the animal body many substances which do not exist formally in the blood, and which are new compounds of matter made out of that fluid; and for an account of which the reader is referred to glandular secretion.

With respect to that change which the animal matter undergoes from a fluid to a solid state, and which is called coagulation, but little is satisfactorily known. It seems to have been a problem amongst chemists, Scholten attributed it to the agency of calor; Fourcroy, to that of oxygen; and Dr. Thomson has of late accounted for it, without supposing the addition of any other substance to the coagulated matter. With reference to the last opinion, it should be observed, that in coagulation, a change in the chemical properties of the coagulated substance takes place, which implies, that a chemical alteration has also taken place; and that even if the theory were true with respect to slobber, it will not account for the coagulation of the fibrine of the blood. Where chemistry fails to explain phenomena incident to living bodies, it is fair to inquire if life may not have some share in their production.

Mr. Hunter thought that the coagulation of the blood depended on its living powers, and supported his opinion by many ingenious arguments. To remove any objection which might be made to a fluid or unorganized substance being alive, he adverts to what happens with respect to the yolk and white of the egg, which, in confluence apparently of their puffing a principle of life, are preserved from putrefaction during incubation, and which reflect the effects of heat and cold in a degree and manner similar to the lower kinds of animals. His chief arguments in evidence of the coagulation of the blood depending on life are, that in some cases where death has been caused by lightning, or by violent fatigue in running, as in animals who are hunted to death, or by blows on the stomach, the irritability of the muscles has been destroyed, and the blood has remained fluid, and never coagulated. Mr. Hunter also mentions, that he mixed infusions of bitter vegetables, which are generally considered as tonics, with blood, and these did not retard its coagulation, but that a solution of opium had that effect. As a prosecution of this hint, the writer of the present article caused blood to be much diluted with water, and infusions of noxious vegetables to be blown into it; yet in these experiments the fibrine still coagulated, and that in a sudden manner.

The vegetable infusions were those of opium, tobacco, and the atropa belladonna. It may be proper to relate the particulars of one of these experiments, in order to give a general idea of the whole. Eight ounces of blood were drawn from the arm into ten pints of water of 95° of Fahrenheit’s thermometer, containing a strong infusion of the atropa belladonna. It was blown with a glas rod; the two fluids appeared transparent and homogeneous. In eight minutes, the temperature being 93°, a considerable quantity of flocculent coagulum at once suddenly formed, and no additional coagulation afterwards took place. The thermometer was attentively observed, but no change was remarked in it during this coagulation. The gentleman who performed these experiments, willing to repeat them with some variety in the mode of conducting them, observed, however, that heat was given out during the coagulation of the blood, as will be seen in the following experiment.

Ten ounces of blood were drawn into a wooden bowl, in which a thermometer was held. The temperature of the blood, while flowing from the vein, was 93°. In five minutes the thermometer had sunk to 89°, and coagulation commenced on the surface; on elevating the bulb of the thermometer to the coagulum on the surface, the quicksilver rose to 90 and ½; on depriving it to the bottom of the bowl, it sunk to 89. This was repeated twice with nearly the same result, and on the third trial the quicksilver rose to 91°; and on depriving it again, it was perceived that the blood was coagulated.
BLOOD. 

coagulated throughout. After this, the quicksilver regularly continued to descend, and was no longer influenced by changing the situation of the bulb of the thermometer.

With respect to the use of the red particles, Boerhavus supposed, that they might tend to keep the dissimilar parts of the blood incorporated, as if agitated in a mixture of sand and water, would prevent the subsidence of the former from the latter. It seems, however, no improbable opinion, that this is the matter which has the very peculiar properties of forcibly attracting oxygen gas, even through the medium of the blood vessels, and combining with it, and becoming in confluence of a scarlet colour, yet, of holding it so loosely as to part with it in the round of the circulation to carbon and probably to hydrogen, and thus contributing to the production of animal heat. The writer of the present article is of this opinion, because he has exposed the red parts of the blood to air containing oxygen gas, and always found the oxygen gas diminished in proportion to the quantity of blood which had acquired a scarlet colour by exposure to it. On the contrary, he has exposed the parts of the blood to various kinds of gas, and never perceived any diminution of oxygen gas by that fluid. Thus probably we discover the principles of nutrition of the body and the canafe of its heat. For a further account of the effects of aspiration on the blood and its concomitants, see LUNGS, function of.

Haller's elements of physiology may be consulted for an account of all that had been done respecting the investigation of the nature of the blood till his time; the works of Mr. Hewson and Mr. Hunter may be referred to, for additional information on this subject; the works of Fontana, for microscopical observations; and for novel chemical experiments, the writings of Fourcroy, Vauquelins, &c. in the Annales de Chimie, and those of Deycux and Parmentier in the Journal de Physique, and Dr. Thomson's excellent summary contained in his System of Chemistry.

BLOOD, transfusion of. See Transfusion.
BLOOD, injecting liquor into it. See Injection.
BLOOD, spitting of. See HEMOPTYSIS.
BLOOD, cooling of. Lord Bacon has suggested that the prosecution of experiments on this subject might possibly lead to the means of prolonging life. But this great philosopher appears to have entertained erroneous notions respecting the animal economy, on this and some other points. Nothing accurate was known, in those days, on the subject of animal heat. If the blood were cooled below a certain standard, disease and death, and not longevity, would be the consequence. However, when the quantity of animal heat exceeds what is natural, the excess is carried off by an increased evaporation from the surface of the body, in other words, by perspiration. And in this way, or by the direct application of water of a low temperature to the skin, the blood, as well as every other part of the body, may be had to be cooled, and disease prevented or removed. But this is not what Lord Bacon meant in his proposal for cooling the blood.

BLOOD, duration of. See Secretion.
BLOOD, flux of, is called HEMORRHAGIA. The periodical ones of women, MENSES. Those after child-birth, LOchia. That ordinarily happening on the first edition is by some called and considered as the telf of virginity.

BLOOD, flowing of. See Systole.
BLOOD, vomiting of. See HEMOPTYSIS.
BLOOD, Circulation of the. See Circulation.
BLOOD, morbid alterations of. The alterations which the blood undergoes in various diseases are such as claim the attentive observation of physicians. But, in order to form a just conception of them, it is necessary previously to consider what are the component parts of this vital fluid, and their relative proportions, in the natural and healthy state.

By the accurate analyses of modern chemists it has been proved, that, besides water, and various saline matters (such as soda, phosphates of lime, of soda, and of ammonium, and nitrates of soda and ammonium), the blood consists of what is termed fibrin, albumen (coagulable lymph), and a colouring principle, viz. oxyd of iron combined with phlogoric acid. These several materials constitute the fluid called blood, which, in its natural state, is kept in constant motion, under a temperature of 98 or 101° (in some animals the temperature is rather higher) of Fahrenheit's thermometer. A large proportion of fibrin, some albumen, and the colouring matter, constitute the error, or crassimentum; while the serum is composed of water, with a large proportion of albumen, and the saline substances above mentioned.

Now, it is probable, that considerable alterations take place in the relative proportions of these ingredients, whenever the living body, whether of man or brute, becomes long or violently disturbed in its action, and especially (as Mr. Hewson has shown) whenever the energy of the vascular action is much increased. But in accounting for any remarkable alterations in the blood, there are several other circumstances, besides that of vascular action, which require to be noticed; and particularly the circumstances connected with respiration, such as the temperature, and purity or impurity of the surrounding air, its greater or less degree of humidity, &c. These, by their chemical agency, must have a considerable influence in the production of the various morbid alterations which take place.

Many variations, however, in regard to the relative proportion of the constituent parts of the blood, and other chemical changes in its qualities, which in all probability frequently take place, are not obvious to the senses, in some diseases, whilst in others they are very conspicuous; for instance, in pleurisy, peripneumonia, acute rheumatism, &c. In these disorders, the blood drawn from the veins, and suffered to stand in the cup until it is cold, becomes covered with a tough buff-coloured coat, or fize, and is usually called infiltred, or inflammatory blood. This fize is formed (says Mr. Hewson) by the coagulable lymph (which consists of albumen and a portion of fibrin) being fixed or coagulated, after the red particles have fubduced. The blood in these cases does not appear to be thicker, but on the contrary thinner than natural. It is lower in conglutinating than healthy blood. The coagulation is owing to the action of the air. Perhaps in pleurisy, acute rheumatism, and other disorders belonging to the phlogistic and morbid writers, some chemical change is produced in the fibrous matter of the blood (see Fourcroy's Comnoinance Chimiques, article Sang), whereby it is preternaturally softened or liquefied; or there may be an over-proportion of albumen, and that of an altered quality. Whatever be the real chemical difference, we cannot think with Mr. Hewson, that it is wholly occasioned by the increased force or energy of vascular action, since it sometimes occurs in cases where the action of the heart and arteries is not more vigorous than natural, and even where their action appears to be below the natural standard. Thus a fize has been sometimes observed upon the blood drawn from patients affected with typhus (Parmentier and Deycux in Fourcroy, as above referred to), and even on the blood taken from icteritic patients. (Ibid.) And Mr. Hewson himself remarks, that it is a common occurrence in pregnant women. Increased energy of vascular action is doubtless a principal cause of the changes observa-
able in fizy blood; but much is also to be ascribed, in this
busiest to the circumstances connected with respiration as
before mentioned.

This fizy blood being so constantly seen in pleurisy, peri-
pneumony, acute rheumatism, and other inflammatory dis-
eseases, it has been considered as a proof of the existence of
inflammatory action in all other cases, wherein it has been
observed; and has accordingly been deemed by many prac-
titioners the best and surest test or index when venepo-
tion should be repeated or withheld, as also concerning the
quantity of blood which should be drawn at each op-
eration. But this is a very wrong mode of proceeding. We
have shown that this appearance (the size of a buffalo coat of
the blood) is not restricted to disorders belonging to the clafs
of phlegmatics, but that it occurs in other infances, where
the free and frequent employment of phlebotomy would be
useless, or even pernicious. Indeed, we have often found
it necessary to repeat the use of the lancet, where this ap-
pearance of the blood has been wanting; and to abstain
from a repetition of it, where it has been present. In regu-
lating, therefore, the abstinence of blood, it is necessary to
attend not only to the appearances of the blood, but more
especialiy to the kind of inflammatory action, to the state
of the pulse and respiration, to the degree and fret of the
pain, and to the age and constitution of the patient. Fur-
ther, the term inflammatory blood, as being liable to mis-
conception and abuse, should be discontinued; and the ex-
pression flowy blood, or blood with a buffalo coat, should be
employed in its place. But if the term inflamed blood be
improper, that of putrid blood is much more so. This was
never yet drawn from any living animal, man or brute.
Putridity is easily known. The smell affords an obvious
test; but the chemical products obtained from animal sub-
fiances in a state of putrefaction are, the surest tests. Yet
those expert chemists, Medins, Parmentier and Deyvoux,
could trace no marks of putridity in the blood taken from
patients labouring under the worst forms of typhus, or what
are commonly called putrid fevers. Such blood did not
yield, by distillation in a water bath, any volatile alkali;
nor in a moderate temperature did it run into putrefaction
sooner than the blood of a healthy person. The blood in
these cases, however, has its peculiar appearances; which,
until we arrive at something more certain in regard to the
cause thereof, we should be content to call typhus-fener blood.
In like manner, the dark-coloured blood of scorbatic pa-
patients (which some ascribe to a deficiency of oxygen, and
we would add of albumen also) we should be content to
call scorbute blo d, until we have better data to proceed
upon. Again, it is conjectured that the pale colour and
dilute quality of the blood, in chlorotic and dropical pa-
patients, may be owing to a deficiency of the colouring mat-
fer (iron) of the blood, as well as an under-proportion of
the fibrous and albuminous matter. But we know not of
any experiments by which this has been demonstrated.
Hence we must for the present be content to name such
blood chlorotic and hydroptic blood; taking care at the same
time to have it understood, that in using these terms, it is
by no means intended to convey the idea, that such a state of
the blood is the cause of chlorosis or droopy, but merely the
concomitant of those disorders. Whoever wishes to in-
vigate the subject of the morbid appearances of the blood
more fully, should consult the writings of Hewson and
John Hunter; and for what relates to the chemical part of
the inquiry, Pocreoy.

Blood, Uso of thee, are either in the animal economy (see Blood supra, and Lungs,); or in medicine, religion,
diet, arts, manufactures, &c.

Blood, mechanical and commercial use of thee, are chiefly in
agriculture, where it is found an excellent manure for fruit-
trees; among lapidaries; in the manufacture of sugar, &c.; in
building, stones are sometimes rubbed with blood to
turn them brown. Some also pretend it has anciently been
used in the mortar of old walls. Blood is the basis of that
noble colour called by painters Prussian Blue. See Prussic
Acid.

Blood, eating of. This practice appears to have been
prohibited to Noah (Gen. ix. 3, 4), which prohibition was
renewed by Moses (Lev. xix. 10—14), and observed by the
Jews, principally with a view to the use of sacrifices in
divine worship, and as a token of respect to the altar, at
which the blood of every victim was presented before God.
The prohibition was repeated by the apostles at the council
of JeruEion (Acts, xv. 28, 29), confirmed and defended
by all the fathers except St. Angilicus, and the universal
practice both of the eastern and western churches till this
time; and in many churches, even of the West, much longer,
as low as the middle of the 11th, some say the 14th and even
the 12th century. The practice of the primitive Church
seems to intimate that they understood the apotolical pro-
hibition to be absolute and perpetual, as they abstained from
the use of blood for many centuries. When they were
charged with eating in the night, and drinking blood, by
way of binding one to another to secrecy, in foul immoral
practices, Tertullian replies to this charge, that it was well
known that no Christian would eat blood at all; infomuch,
that it was usual with heathens, when they wanted to know
whether any peron was a Christian, to let blood-puddings
before him as a very sufficient test. Moreover, blood is not
eaten by Christians in any part of the East, or by the
Greeks, or Russians, who are of the Greek church, to this
day; and it has been alleged, that the use of blood was not
introduced into this western part of the world till a very late
period. When the Pomeranians were converted to Chris-
anity, in 1120, they were particularly enjoined to abstain
from blood, as a badge of their profession. It was not al-
lowed to be eaten in the West in the time of Bede, or a cen-
tury afterwards; and blood was not eaten in any part of
Switzerland, till Calvin introduced the practive from some
other place. Dr. Lardner, however, says (ubi infra), that
little regard was paid to these regulations of the apotolical
decree by the Latin Christians, from the end of the fourth
century.

The question is, whether the apotolical precept to ab-

tain from blood, should be considered as only temporary and
occasional, a fort of accommodation to the weaknes of the
Jewish converts; or perpetual, founded on moral principles,
and consequently still obligatory. The former opinion feems
the more probable, and is the most generally received. For
the prohibition in the law of Moses, two reasons have been
suggested; one is, that the blood was appointed to make
atonement on the altar for offence against the law. The
prohibition, according to this view of it, must be restricted
to Jews and others circumcised under the manner of Moses;
for no other persons could offer sacrifices, or be cut off for trans-
gressing the Levitical laws, but such as were of that people.
The other reason is thus expressed: "It is the life of all
flesh; the blood of it is for the life thereof." (Lev. xix.
14); that is, as some have interpreted the passage, it is the
nourishment of the animal, and not fit for your nourish-
ment; and because it was not fit for food, and was unleas-
of and offensive, therefore it was to be poured out upon
the earth, or covered with dust, that is, buried in the earth;
and this order is frequently repeated. Lev. xvii. 13. Deut.
xii. 16. 24. xv. 23. Hence we may account for the con-
duct
duke of David, when his three warriors brought him water from the wall of Bethlehem, at the extreme hazard of their lives (1 Chron. xi. 18.); conferring the water as if it were their blood, which they hazarded to obtain it, he refused to drink it; and there being no rule or reason for offering such water upon the altar, he did what seemed to be next to offering it; "he poured it out before the Lord." The Jewish ordinance answered two obvious ends; it fostered, with other regulations and restrictions, to keep the Jewish people separate from other nations; and it also promoted their bodily health and vigor. But there is no foundation, either in the reason of this thing, or in the prohibition, to support the opinion of those who imagine the eating of blood to be an immoral thing; if this had been the case, God would not have permitted the Israelites (Deut. xiv. 21.) to eat a creature that died in his blood to an alien or stranger, that he might eat it. If, therefore, the eating of blood cannot be reckoned an immorality, the prohibition in the apocryphal decree cannot be binding upon all men in all times, but only at some seasons, when the circumstances of things render forbearance or abstinence expedient. Accordingly, if blood be thought disagreeable and unwholesome, as food, the use of it may be avoided for the sake of health; but we are not obliged to abstain from it upon a religious account, or in virtue of this decree, which would be no better than superstition. It has been supposed, by some approved writers, and especially by Dr. Lardner, that this was only a temporary provision, designed to prevent giving offence to the believing Jews, and to facilitate civil converse and religious communion between believing Jews and Gentiles. Dr. Lardner also supposes that the decree is not to be understood as a precept or commandment, but as delivering advice and counsel concerning some matters of prudence and experience, considering the circumstances of things and persons in that time. It has been farther urged as an argument against the perpetuity of the apocryphal decree, that the apostle Paul never quotes, or alludes to it in his writings.

On the other hand it has been argued, that the prohibition to eat blood, given to Noah, seems to be obligatory on all his posterity: and if it was so accomplished the first expressly given for all his posterity, it seems to be the referred back of acknowledgment to God, as the giver of life, and of the food which supports it. This respect paid to blood, which is fixed when animals are killed for food, and which is the most apparent vehicle of life, may also be intended to inculcate a respect for life, as the most valuable gift of God, and to warn us not to deprive any animal of it, and much less man, without necessity. It has also been pleaded, as an additional argument for abjuring from blood, that it is not a wholesome aliment, especially in hot countries, promoting leprous and scurvy disorders. The advocates of this opinion farther argue, that blood is prohibited because it tends to make men savage; that the prohibition is joined with that of fornication, which is an immorality in the common sense of the term, but which Dr. Lardner understands as denoting marriage with heathens, from which the apostle Paul so earnestly dissuades the Christians at Corinth: and that God has enjoined abstinence from blood on all Christians, in order to manifest his supreme dominion over all their enjoyments. Helden. de Jure Gentium, &c. l. vii. c. 1. Shuckford's Conn. vol. i. p. 93. &c. Lardner's Remarks on Dr. Ward's Dilettamenti in works, vol. xi. p. 329. &c. Prieiiey's Instit. vol. ii. p. 439. &c.

Blood, religious use of. Among the ancients, blood was used for the healing and ratifying of covenants and alliances, which was done by the contracting parties drinking a little of each other's blood; for appeasing the manes of the dead, in order to which blood was offered on their tombs, as part of the funeral ceremony. Thus we read, that twelve youths were sacrificed at the funeral of Patroclus: and eight at that of Pallas. Homer. Iliad. ver. 27. Virgil. Æn. lib. x. ver. 518.

The blood of victims was the portion of the gods, both among Jews and Heathens; and accordingly was poured or sprinkled on the altars, in oblation to them. Some have affected, that the Romans offered human blood to appease their deities, which is denied by others. The priests made another use of blood, viz. for divination: the streaming of blood from the earth, fire, and the like was held a prodigy, or omen of evil. The Roman priests were not unacquainted with the use of blood in miracles; they had their fluxes of blood from images, ready to serve a turn; wusses that had to have approached from the statue of Minerva at Modena, before the battle that at that place. But in the latter part of Christ our Saviour and his apostles. The priests and Levites had the power of dispensing the things of the sanctuary that were in their hands.

Blood, in the Roman Church, is used in speaking of the wine in the eucharist; which they suppose miraculously converted, by the priest's consecration, into the real blood of Christ. See TRANSUBSTANTIATION, &c.

Blood, is also used abusively for the sap of plants; as having much the same office, in the vegetable, as the other in the animal economy. In a sense not unlike this, wine is sometimes also denominated the blood of the grape. Blood is also applied, in Pharmacy, to certain vegetable juices, tears, &c. as dragon's blood. Dragon's blood, sangus draconis, is also used by the Arabs for the juice of the anchusa.

Blood, sanguis, a ruddy liquid produced from the roots of juncum, baked with bread; and liquefied, as it were, into blood, by a long distillation. Blood, in Chemistry and Alchymy, is a denominations given to several artificial compositions, chiefly on account of their red colour.

Blood is more peculiarly used by the alchemists for the tincture of a thing. In which sense we meet with blood of mercury, denoting the tincture of it; dragon's blood, denoting the tincture of antimony.

Blood, Dragon's. See DRAGON'S BLOOD.

Blood is also used in Middle Age Writers, for supreme jurisdiction, exercised by the lord of the fee, in cases where blood is spilt. This is also called "judgment of blood," "justice of blood," sometimes "cognizance of blood." Blood, avenger of, among the Jews, was the next of kin to the person murdered, who was to prosecute the murderer. Ecclesiastical judges retrench judgment to be given in cases of blood, because the church is supposed to abhor blood: it condemns no person to death; and its members become irregular, or disabled from their functions by the effusion of blood.

Blood of Christ, is the denomination of a military order instituted at Mantua, in 1668, by Vinci, Gonzangua IV. Its device was "Domine probasti me;" or, "Whil boke trible receptor." Hermann speaks of this order, and observes that it took its name from some drops of the blood of Christ.
fiald to have been preferred in the cathedral church of Mantua. The number of knights was restrained to twenty, besides the grand master; the office whereof was annexed to himself and his successors.

Blood, in Farriery, denotes a distemper in cattle's backs, which makes them in going draw their heads aside, or after them; the cure is by flitting the length of two joints under the tail, and thus letting the beast bleed plentifully. If he bleed too much, the farriers knit his tail next the body, and then bind fast and nettles bruised on the part.

Blood-running itch, is a species of itch in a horse, proceeding from an inflammation of the blood by over-heating, hard riding, or other sore labour; which getting between the skin and flesh, makes the beast rub and bite himself; and if let alone, sometimes turns to a grievous mange, highly infectious to all ungulates.

Blood, field of, in Syria acedamma, was a field purchased by the Jews, with the thirty pieces of silver which had been given to Judas for betraying his master, and which he had restored. It still serves for a burial-ground, in which all pilgrims, who die in their pilgrimage at Jerusalem, are interred. See Acedamma.

Blood-flower, in Botany. See Hæmatthys.

Blood-bound. See Hound.

Blood-letting. See Bleeding.

Blood, precious, in Ecclesiastical History, a denomination given to a reformed congregation of Bernardine nuns at Paris, first established under that name in 1661.

Blood, Princes of the, in France, are those descended from the blood royal.

Blood-fottten, in Surgery, a diftemper of the eyes, wherein the blood-veeffels are greatly diftended, so as to make the eyes appeare. See Ophthalmia.

Blood-stone. See Hæmatites.

Blood of sulphur, fanguis sulpharius, is a preparation of liver of sulphur, ground with the oil of tartar per dilutionem, then digested with dulcified spirit of nitre. It is reputed a good pectoral and diuretic, but rarely preferred.

Blood-cuffs, in Anatomy, usually include only the veins and arteries; though, in a larger fene, all the vessels in the body, as the nerves, lymphatics, &c. to the very hair, may be comprehended under the denomination. See Artery, and Vein.

Blood-snafe. See Blood-Snake.

Blood-wite, in Ancient Law Writers, signifies blood, and a customary amercement paid as a composition for the shedding or drawing of blood.

The word is also written blodwite, blodwita, blodwyta, bloodwit, bloodwit, bloodwit, and bludcwit; and is formed from the ancient Saxan blod, blood, and wite, or wuits, a fine or penalty.

The word also denotes an exemption from this penalty, granted by the king to certain persons and communities, as a special favour. Thus, king Henry II. granted to all tenants within the honour of Walfingford—"Ut quenf finft de higadie et blodwite et brewite."

Blood-wood. See Hæmatoxylon.

Blood-wort or Bloody Dock, in Botany. See Rumex.


Blood, inheritable, denotes such a regular descent as gives a person legal right to inherit the estate of an ancestor. See Antennder, Escheat, Inheritance, &c.


Blood, Royal, is applied to the regular descendants of the royal family. See Royal Family.

Blood, whole and half; a kinsman of the whole blood is he that is derived from the same pair of ancestors; whereas a person of half blood descends from either of them singly, by a second marriage. Blackit. Com. vol. ii. p. 227. See Descent.

BLOODY Crime, Sanguiniwm Crimen, in Writers of the Middle and Barbarous Age, that which is punished with the blood or life of the offender.

BLOODY Flux, in Medicine. See Dysentery.

BLOODY Hand, in Law, one of the four kinds of trefpasses in the king's foref, by which the offender being taken with his hands or other part bloody, is judged to have killed the deer, though he be not found either hunting or chasing. In Scotland, in such crimes, they lay, taken in the fact, or with the red hand. See Backberond.

BLOODY-heel Cock. See Heeler.

BLOODY Island, in Geography, an island in the harbour of Port Mahon, in the island of Minorca.

BLOODY Point, a cape on the south-west coast of the island of St. Christopher's. N. lat. 17° 24'. W. long. 62° 41'.

BLOODY BRZ, a bay on the north side of the island of Egmont, or New Guernsey.

BLOODY-Farndand Points, a remarkable head-land on the northern coast of the county of Donegal, Ireland, nearly opposite to Tory island. N. lat. 55° 9' 30". W. long. 8° 11'.


BLOODY Rain. See Rain.


BLOODY Urine, in Medicine. See Hæmaturia, and Urine.

BLOOM, in the Iron works, a term used by the miners for a four-square mass of hammered iron, about two feet long, and three quarters of a hundred weight, made from part of a few of cast iron. The bloom, however, is not yet become iron fit for the smith's use, but must undergo many hammerings, and be first made what they call the anoy, or which fee.

Bloom, half, a round mass of metal, which comes out of the fueny of an iron work. See Bloomy.

BLOOMS, in Sea Language, hot burning winds, blowing from the land to the sea.

BLOOMFIELD, in Geography, a township of America, in Ontario county, New York. By the late census of 1726, 151 of the inhabitants were electors.

BLOOMING VALE, a tract of land, in the township of Manlius, and state of New York, or Butternut creek.

BLOOMSOM, in a general sense, denotes the flower of any plant. See Flower. In a more proper sense, the word is restrained to the flowers of trees, which they put forth in the spring, as the forerunners of their fruit, otherwise called their bloom. The office of the blossom is partly to protect, and partly to draw nourishment to the embryo fruit, or seed. Phil. Trans. No. 599. p. 329.

Blossom, in Botany, denotes one of the parts of a flower. See Corolla.

Blossom is also used in the Meanges, for the colour of a horse, which has his hair white, but intermixed all over with foar and bay hairs, called also pencol-coloured.

Horis of this colour generally are hard and inefoluble, both in the mouth and the flank; so that they are little valued; besides they are apt to turn blind.

BLOOM, in respect of sheep. See Elixir.
BLO

BLOT I. "Eloge", or Blot in Rake, in Geography, a
town of France, in the department of the Allier, 16 miles
W. of Gannat.

BLOTED China Ware, a name given by some to a sort
of china that is loaded with colours in an irregular manner.
This pleases some people, but it is a defective sort of ware,
the large blotches of colours having been only laid on to
cover the blemishes or faults in the first baking.

BLOTHNO, in Geography, a town of Lithuania, in the
palatinate of Wilna, on the river Rawie, 16 miles N. of
Lida. N. lat. 54° 5'. E. long. 25° 34'.

BLOTTING Paper, a species of paper, made without
size or stiffening, serving to imbibe the wet ink in books of
account, and prevent its setting off, or blotting the oppo-
site page.

BLOTTING book, a sort of minute book, or memorandum
book, used by some merchants for making imperfect entri-
es in a present hurry, which are to be copied out fairer and
fuller at right into the journal.

BLOUNT, Thomas, in Biography, a learned English
writer, was born at Bordeaux, in Worcestershire, in 1619;
and, without the advantage of an university education, made
a considerable progress in literature. By profession he was a
barrister of the Inner Temple. Upon the breaking out of
the popish plot in the reign of Charles II., he was much
alarmed on account of his being a zealous Roman Catholic,
and, being the only, which terminated in his death, in
1679. His works were numerous; and are as follow: viz.
"The Academy of Eloquence," "Glo-" tographical, or a
dictionary interpreting such hard words, Hebrews, Greek,
Latin, Italian, &c. introduced into the English tongue,"
1656, 8vo.; "The Lamps of the Law, and the Light of
the Gospel, &c." "Boffobel, or the History of his Ma-
jefty's Escape after the battle of Worcester," 1662, 8vo.
the second part was printed in 1681, 8vo.; "The Catholic
Almanac for 1661, 62, 63, &c." "Booker refuted, or
Animadversions on Booker's Ephemeris, 1665, 4to.;
"A Law Dictionary," 1671, fol.; "Animadversions
upon Sir Richard Baker's Chronicle, &c." 1672, 8vo.
"A World of Errors discovered in the New Book of
Worlds, &c." 1673; fol.; "Fragmenta Antiquitatis,

BLOUNT, Sir Henry, was born at the feast of his father
Sir Thomas Pope Blount, at Tattenham, in Hertfordshire,
in 1602; and having completed his education at Trinity
college, Oxford, he commenced the study of the law at
Gray's Inn. Being resolved to travel, he set out on his
tour in 1634, and visited the Turkis dominions in Europe,
and also several parts of Egypt. After a long stay at Grand
Cairo, he returned to England, in 1636, and published an
account of his travels under the title of "A Voyage into
the Levant, &c." Lond. 1636, 4to. which had a rapid
sale, though it was not held in high estimation by the most
competent judges. Charles I. appointed him one of the
hand of pensioners; and, on his father's death, in 1638,
he succeeded to the family seat at Blount's hall in Stafford-
shire, and a considerable estate. In the civil war he joined the
royal party; but abandoning the royal cause, he was well
received in London by persons in power. In 1651, he be-
came one of the committee for reforming the practice of
the law; and he was very zealous against tyrants, and for
the reduction of the flippends of all parish ministrers to an equal
and moderate provision. His general knowledge recom-
ended him to the office of one of the commissioners for
advancing the trade and navigation of the commonwealth.
His brother's death, in 1654, made way for his succession
to the Hertfordshire estate. At the Restoration he was
favourably received by the king; and in 1661 he served
the office of high-sherif for the county of Herts. From
this time till his death, in 1682, his life was spent in a
gentleman; but he seems to have acquired from his travels
an inclination to freedom of opinion, and to have adopted
several singular and paradoxical notions. Six comedies,
ettled "Court Comedies" and published under the name of
John Lilly, have been ascribed to him. Biog. Brit.

BLOUNT, Sir Thomas Pope, eldest son of the preceding,
was born at Upper Holloway, near London, in 1649, and
educated under the immediate inspection of his father. Hav-
ing established an early reputation for learning and worth,
he was created a baronet by Charles II. in 1679. He represented
first the borough of St. Alban's, and afterwards the county
of Herts, and was always esteemed as a friend of liberty,
and a true patron of literature. Of his erudition he gave
evidence in his learned work, entitled, "Centuria Celebrat-
orum Authorum," printed at London, in 1690, folio, and
reprinted at Geneva in 1693 and 1710, 4to. This work is
an accurate and useful compilation, containing an account
of the characters and writings of both ancient and modern
authors. His work "De Re Poetica," published in 1694,
4to, is a similar compilation, comprehending an account
of ancient and modern poets. His "Natural History," printed
1693, 12mo., is a kind of common-place book, containing
observations, many of which are uncommon, selected from
the best modern writers. Of his talents as an original writer,
we have a specimen in his "Effays on several Subjects," 8vo.
in which he discusses many curious points; such as the in-
fluence of the priesthood; the regard due to the ancients;
the variety of opinions; the uncertainty of human know-
ledge; the effects of custom and education, &c. He died at
Tattenham, in 1697, and left a numerous family.

Biog. Brit.

BLOUNT, Charles, brother of the preceding, was born
at Upper Holloway in 1654, and possessed distinguished
talents, which were industriously cultivated by his father, who
affirmed the direction of his studies. As he was the favourite
of his father, he encouraged his marrying and settling in an
independent estate at the early age of eighteen years. If
we except a little tractate, published without his name, and
entitled "Mr. Dryden vindicated, &c." his literary career
commenced in 1678 or 1679, with the publication of his "Ani-
mal Mundi, or an historial narration of the opinions of the
ancients concerning man's soul after this life, according to
unenlightened nature;" in the composition of which he is
said to have been assisted by his father. This work contained
free opinions, which gave great offence; and though it
had been previously licensed, was suppressed by order of
Compton, bishop of London; and during his absence burned
by some officious zealot. Several answers to it were written;
and it was particularly animadverted upon in the second
volume of Nicholl's Conference with a Thief. In the same
year Mr. Blount published some extracts from Hobbes's
Levitathan, in a single folio, entitled "Mr. Hobbes's last
Words and dying Legacy," and intended to expose, proba-
ably, the political principles of this writer. To these, his
ardent zeal for liberty rendered him peculiarly adverse; and
his zealous attachment to this cause was soon after manifested
in a pamphlet, under the signature of "Junius Brutus,"
designed to alarm the nation with regard to a popish plot,
and the prospect of a popish successor to the crown. In 1680
he published his translation of "The Two First Books of
Philostates, concerning the life of Apollonius Tyanaus,
with philological notes on each chapter," fol. which, being
considered as a dangerous attempt to reproach and injure
the Christian religion, was immediately suppressed, so that
new
few copies of it could be obtained. This was followed, in
the same year, by a work entitled "Great is Diana of the
Ephesians, or the Original of Idolatry, together with the
political institutions of the Gentiles' Sacrifices;" which,
though professedly written against the impositions of the
Heathen priests, was thought to be aimed at the Christian
priesthood, and indirectly against all revelation. The author
was now considered as the head of the Deistical sect, and he
was charged with having taken great pains, by conversation
and correspondence, to propagate and defend his opinions.
In a letter to Dr. Sydenham, however, he acknowledged,
that in point of practice, Deism was less satisfactory than the
Christian femehe. The clamour occasioned by his former
publications made him somewhat more cautious and reserved;
and accordingly he flanadly concealed his being the author
of a treatise, entitled "Religio Laici," published in 1683,
and said, by Dr. Leland, in his Deistical writers, vol. i. p. 37,
to be little more than a translation of Lord Herbert's work,
under the same title; and he also abandoned the design
which he had formed of writing a life of Mahomet. From
this time he seems to have changed the objects of his study;
for in 1684, he published "Jamaica Scientiun; or an Intro-
duction to Geography, Chronology, Government, History,
Philosophy, and all gentlle forts of learning," 8vo. which
was intended to affit young persons at an early age in the
acquisition of principles of philosophy and science, without
pursuing the tedious course that had been usually preferred
in to schools.

Mr. Blount was one of those who cordially concurred in
the revolution; and in a letter addressed to W. Lefevon
Gower concerning corporations, and inferred in the "Oracles
of Reason," he expresses his wish, that those counsellors of
the late king, who had injured the independence of parlia-
ment, might be punished, justly considering the purity of
representation as the essence of a free constitution. About
this time he wrote his treatise entitled "A Full Vindication
of Learning, and of the Liberty of the Prefets," which is
elected one of his best performances, and a summary of all
the principal arguments that can be urged upon this topic.
In his zeal for the cause of king William, he wrote a pamphlet
in 1693, intended to prove the right of William and Mary
to the crown, on the ground of conquest; and in explana-
tion of this design, fo llifonnant, one would imagine,
with his principles, and no less obvious than ill-advised,
he declares that he wrote "with an especial regard to such
as have hitherto refused the oath, and yet allow of the title
of conquest, when confecrated to a just war." By this per-
formance he gave such offence, that, on a complaint being
brought before the house of commons against this pamphlet,
entitled "William and queen Mary Conquerors," it was
ordered to be burnt by the hands of the common hangman;
and in the same contempt was involved a pastoral letter of bishop
Burnet, in which the fame notion was advanced, probably
with the same views.

Mr. Blount, having lost his wife, became ardently en-
amoured of her fliter, a lady of great beauty and merit, who
feemed disposed to return his affection; but as the ecclefia-
stical laws opposed their union, he drew up a cafe strongly
argued, and referr'd it to certain divines, who of course
gave their opinions against his wishes. As the lady refused
to comply, after such a determination, Mr. Blount funk into
defpair, and at length fhot himself through the head.

After this act of phreny, he languished for some days,
receiving no nourishment but from the hands of the object
of his affection, till at laft death releafe him, August 1693.
Many of his private letters and fome small tracts were pub-
lished, together with a preface, by Gildon, in 1693, before
the author's death, in a work entitled "The Oracles of
Reason," which was afterwards re-printed, with fome ad-
ditional pieces, after his deceafe, in 1695, in a collection
of "The Miscellaneous Works of Charles Blount, esq.," by
the fame Mr. Gildon, who prefixed to it an account of
the life and death of the author. The learning of Mr.
Blount is unquestionable, and he seems to have possessed
a strong and ardent mind; but his early dislike of superstition
precipitated him into some very considerale errors, and
inclined him to believe all revealed religion to be pretenc-
ious, because he perceived that some priests had converted
religion to their own pecuniary advantage. His sentiments on the
subject of religion were divulged in his writings without dif-
guise, and sufficiently warrant our referring him to the clas-
of deists; but the charge of atheism alluded against him
by fome foreign divines, is certainly unfounded. See an
account of Mr. Blount's writings by Dr. Leland, in the
fourth letter of his View of the D€istical Writers, vol. i.
By this author we are informed that Mr. Gildon, who pub-
lished the "Oracles of Reason," and communicated them
to the world, was afterwards, upon mature consideration,
convinced of his error, and in 1703 published his retraction
part of this book is intended to vindicate the doc-
tines of the existence and attributes of God, his providence
and government of the world, the immortality of the foul,
and a future state. And his avowed reason was, because
many of the deists, with whom he was well acquainted,
did really deny those great principles, which lie at the
foundation of all religion, or at least, represented them as
doubtful and uncertain. And their not admitting natural
religion in its juft extent, formed fome of their principal

Blount, in Geography, a new county of the State of
Tennflee, in America, bounded fouthier by lands re-
tained by the Indians. It contains 5326 inhabitants,
of whom 339 are blacks.

BLOUNTSVILLE, a town of America, in North Ca-
rolina, on the post-road from Halifax to Plymouth, 49 miles
from Plymouth, and 55 from Williamstown.

BLOW, in a general fense, denotes a stroke given either
with the hand, a weapon, or instrument. The effect of
a blow is estimated like the force of percuflion, and ac-
cordingly it is exprfied by the velocity of the body multiplied
by its weight.

In Elingo, blows differ from thrusts, as the former are
given by striking, the latter by pushing. We fay to give,
to return, to party a blow. (See Parrying.) Blows on
the fword make a kind of purrufit, called BEATING.

Blow, blind, iulus oculus or oculo, is that which does not
appear, or is not attended with effufion of blood; in contra-
diftinction from that followed by a wound, discolouring,
tumour, or the like, called iulus aperitus or aparentis, an open
blow.

In the ancient laws, we find blows for remembrance, given
to make persons remember fome transafion, and enable them
to become better witnesses of it in future times.

Blows, military, alula militaris, that given with the fword
on the neck or shoulder of a candidate for knighthood,
in the ceremony of dubbing him. The custom feems to have
taken its rise from the ancient ceremony of manumifion.

In giving the blow, the prince ufed this form: "efto
bonus miles;" upon which the party rofes a complete knight,
and qualified to bear arms in his own right. Sometimes a
double or even triple blow was given, called trina percaro.

Blow, Dr. John, in Biography, born at North Colling-
ham, in Nottinghamshire, was one of the first fet of children
of the chapel royal after the reforation, that was brought
up under captain Cook. He likewise received instructions
from
from Hugelston, domestic organist to Oliver Cromwell, and Dr. Christ. Gibbons. In 1675, he was sworn one of the gentlemen of the chapel; and in 1674, upon the decease of Humphrey, appointed master of the children. In 1687, he was nominated one of the private music to King James II., and in 1689, he was likewise appointed almoner and master of the choristers in the cathedral church of St. Paul; but, in 1693, he resigned this last place in favour of his scholar Jeremiah Clark.

Blow had his degree of doctor of music conferred on him by the special grace of archbishop Sancroft, without performing an exercit for it in either of the Universities. On the decease of Purcell, in 1695, he was elected organist of St. Margaret's, Westminster; and, in 1699, appointed composer to the chapel of their majesties, King William and queen Mary, at a salary of £120 a year, which afterwards was augmented to £51. A second composer, with the like appointment, was added in 1715, when John Weldon was sworn into that office; at which time it was required that each should produce a new anthem on the first Sunday of his month of waiting.

That Blow was a composer of anthems, while a singing-boy in the chapel royal, appears from Clifford's Collection of the Words of the Services and Anthems used in our collegiate and cathedral churches, 1664; for among the ecclesiastical composers mentioned in this book, amounting to upwards of sixty, are included the names of Pelham Humphrey, John Blow, and Robert Smith, children of his majesty's chapel. Humphrey was born in 1647, and Blow in 1648; so that at the redaction, the first being only thirteen, and the second but twelve, their composing anthems fit for the chapel royal, before they had attained the age of sixteen or seventeen, would now be regarded as wonderful proofs of precocity, if Purcell, soon after, at a more early period of his life, had not produced compositions that were full superior to theirs.

Dr. Blow died in 1708, at sixty years of age: and though he did not arrive at great longevity, yet, by beginning his career, and mounting to the summit of his profession so early, he enjoyed a proflorous and eventful life. His compositions for the church, and his scholars who arrived at eminence, have rendered his name venerable among the musicians of our country.

Though his church music was never collected in a body, yet, besides the three services and ten full and verie anthems printed by Boyce, in Dr. Tudway's MS. collection, nineteen of his choral productions have been preserved; and in Dr. Aldrich's collection in Christ-church there are five more. The aggregate of which, amounting to upwards of forty different compositions of this elaborate kind, is but a small part of what might be found in the chapel and choir-books of our cathedrals.

Some of his choral productions are doubtless in a very bold and grand style; however, he is unequal, and frequently unhappy, in his attempts at new harmony and modulation; but, as a composer who ranked so high among our most classical masters should not be praised or cenured indiscriminately, we shall point out a few instances of his great, and to our conceptions, unwarrantable licences, as a counterpoint.

We are so farry to see, as to say, how confined and inaccurate a harmonist he was; but as it is necessary to speak of an artifce so celebrated and honoured by his contemporaries, to dissemble his faults would furpafs candour, and incur the cenure of ignorance and partiality; for it is as much the duty of an historian to blame as to praise, when justice and integrity require it. Indeed, upon whatever subject a man writes, he should aspire at nothing so much as speaking truth of he wishes for the approbation of his conuenience, which is not only the most comfortable of all praise, but, luckily, the most within his own power. The abilities of the dead, we can have no interfet in depreciating; and if our opinion should be unjuft, the mischief will recoil on ourselves; for the dead have more friends than the living, who are ever ready to vindicate such wrongs.

Though there are strokes of pathetic and subjects of fugue in Blow's works that are admirable; yet we have examined no one of them that appears to be wholly unexceptionable, and free from confusion and crudities in the counterpoint. Of the two-part anthem with choruses, "Lord how are they increased," the first movement is very plaintive and expressive; but there are licences in the harmony which look and found quite barbarous. Indeed, these crudities are so numerous as to throw a doubt on his learning, as well as genius. Whether they are notes of paflion, effusions of an unriely spirit, or of ignorance and affectation, we will not venture to determine; but to our ears, they have the full effect of jargon and want of principles.

It does not appear that Purcell, whom he did himself the honour to call his scholar, or Crofts, or Clark, his pupils, ever threw notes about at random, in his manner, or indulged the ear with lawful discord, which no concords can render tolerable.

In an anthem, "Turn thee unto me, O Lord," printed by Henry Playford in the second collection of Divine Harmony, there are so many wanton violations of rule, particularly in the last chorus, that it would be endles to point them out; but they seem such as no rule, authority, or effect, can justify; 7ths resolved on the 8th, ascending and descending; 2ds treated with as little ceremony as 3ds. Indeed, we never saw so blovenly a score in print; and it may, in general, be said of his faults in counterpoint, that there are unaccounted millions of them to be found in his works.

He has been celebrated by Dr. Boyce, for "his success in cultivating an uncommon talent for modulation;" but how so excellent a judge of correct and pure harmony could tolerate his licences, or reconcile them to his monumental character, and the additional praisce he has himself bellowed upon him, is as unaccountable as any thing in Blow's compositions, considering the knowledge and known probity of the late worthy editor of Cathedral Music.

Many of his ballads, though only in two parts, are full of crude discords unprepared and unresolved; the cause of which, in some measure, may be ascribed to the ground-baser, on which it was now the fashion to write: for melody being scarce, both that and the harmony were frequently injured by this Gothic refrain. But the passing-notes and notes of embellishment of the composers, in general, of this period, were uncouth in melody, and licentious in harmony. Perhaps those of the present times, in less than a century, will be equally unpleasing to the ears of politerity; and yet we fancy that both melody and harmony have received their last polish.

The ballads of Dr. Blow are in general more smooth and natural than his other productions, and, indeed, than any other ballads of his time; there is more melody than in those of Henry Lawes, or any composer of the preceding reign; yet it is not of that graceful kind in which the Italians were now advancing towards perfection, with great rapidity. It is either of a Scots call, or of a languid kind, that excites no other sensation than fatigue and drowsines.

His pastoral, "Since the Spring comes on," is, however, as chanzant as any mongrel mixture of Scots, Irish, French, and English, that has been since compiled.
The blow-pipe (more distinctly represented in fig. 2.) is so called from its resemblance to a shoe. It is made of tinned iron, and consists of two parts: the exterior, a, serves to hold the proper lamp, and to retain the oil, which occasionally drops from the wick; the lamp, b, has a fixed cover, except at the tip, e, where a circular aperture is left for the wick, d, which consists of a bundle of cotton threads, about an inch in diameter; at e is a hinge, by which that part of the lid nearest the wick may be raised, in order to pour in fresh oil, or to renew or raise the wick.

The glass-worker's blow-pipe is, however, not sufficiently portable for the use of the chemist and mineralogist, and it was a happy thought of Swab, the Swedish mineralogist, to substitute the lungs for the bellows. Gahn, Engelroth, and Bergman suggested various improvements in the construction of this instrument, which now appears to have attained a great degree of perfection, as it is perhaps capable of.

The common chemical blow-pipe consists of five parts; (Chemistry, Plate XI. fig. 3.) the mouth-piece, a; a plain tube, b; a bulb, c; a curved tube, d; and a nut, e.

The mouth-piece (more distinctly represented by fig. 5.) is made of ivory, the rest of the apparatus being of brass, and fits closely into the pipe, b, so as to be air-tight; the bulb, c, is divided into two hemispheres, which screw into each other, and is designed to collect and condense the moisture of the breath; into the lower hemisphere is fixed the recurved tube, d (as represented in fig. 4.), in such a manner as to prevent the condensed vapour from escaping out of the bulb; the nut, e, is a hollow cylinder sufficiently wide at one end to receive the extremity of the curved tube, and perforated at the other with a small round hole, to allow a passage for the air; each blow-pipe has generally three of these nuts (fig. 6.), with apertures of different sizes, the largest of which does not exceed the diameter of the smallest pin.

In using the portable blow-pipe, the only difficulty is to keep up a constant stream of air; which is to be done by performing the function of respiration through the nozzles alone, diverting from time to time a portion of the expiration into the mouth for the supply of the blow-pipe, and forcing it through the tube by the action of the muscles of the cheek. This knack is by some acquired in an instant, while others are a long time in making themselves masters of it. To those who experience any difficulty in the free use of this instrument, the following directions may be of service. First, let the learner accustom himself to breathe freely with the mouth full; then in making an expiration, let him transfer the air into the mouth, till the cheeks are moderately inflated, and retaining it there, let him discharge the surplus of the expiration through the nozzles, and then make two or three easy inspirations and expirations through the nozzles, without allowing the air in the mouth to escape. When practice has rendered this easy, which may be effected in half an hour, let the nut with the smallest aperture be fixed on the curved tube of the blow-pipe, and introduce the mouth-piece within the lips; then inflate the cheeks by an expiration, and continue breathing easily through the nozzles, till nearly the whole of the air has passed out of the mouth through the tube; then renew the air as before, and, after a few days' practice, the muscles of the mouth will become accustomed to this new mode of exertion, and an uniform uninterrupted stream of air may be kept up for half an hour without any extraordinary fatigue. A wax candle, f, having burnt long enough to allow the wick to be turned down, in the manner represented in the plate, the nut of the blow-pipe is to be applied to the arch of the wick, and the air, as it comes through, will bend the flame into a neat horizontal cone, the exterior part of which is yellow, and the interior...
The substance under examination being reduced to the size of a peppercorn, is to be placed in the platinum spoon (fig. 5), or into a shallow cavity in a piece of compact charcoal, and being first gradually heated by the yellow flame, it is afterwards to be exposed to the full intensity of the blue focus, \( \theta \).

An important use of the blow-pipe in the laboratory is to soften glass-tubes, &c. in order to bend them to any shape that may be required, for which purpose the blow-pipe just described is not very well qualified, the flame not being large enough, and, from its intensity at the blue focus, acting very unequally. It may, therefore, in thefts, and similar cafes, be advantageously superfed by the alcohol blow-pipe.

This instrument, the invention of which is due, we believe, to M. Paul and professor Pickart of Geneva, has received here improvements from English artists, and is figured in Chemistry, Plate XI. fig. 1. and 2. It is made of brasses, and consists of the following parts: \( A \) is an oval bafe, in which are two round holes, for the reception of the two spirit lamps, \( B \) and \( C \), the latter of which has a considerably thicker wire than the former. \( D \) is a piller that screws into the bafe, and supports a moveable brasses collar, \( E \), which may be retained at any convenient height by the screw. \( F \) is the boiler hanging loosely, but securely, in the collar; \( M \) is a screw accurately closing an aperture in the boiler, through which it is filled with alcohol; \( I \) is a conical plug, serving as a safety-valve, the resistance of which to the expansion of the vapour is regulated by the feel flying \( H \), composed between the screw nuts \( G \) and \( K \); \( O \) is the delivering pipe, seen more particularly at fig. 2. It consists of a plain tube, \( a \), somewhat longer than the depth of the boiler, of a hollow and screw, \( b \), by which it is fixed in the bottom of the boiler, of a ball and joint socket (composed of the sphere, \( a \), including the perforated bulb and stem \( f \).), and of the nut \( g \), terminated by a small aperture, &c. screwed on the stem \( f \). \( N \) (fig. 1.) is a hollow cap, screwed into the boiler, and receiving the head of the tube, \( a \), to prevent any liquid alcohol from being thrown into it. This blow-pipe works in the following manner: The boiler being filled with alcohol, and the screw and valve secured, the lamps \( B \) and \( C \), are lighted. The alcohol in the boiler being brought to ebullition by the lamp \( B \), the vapour ascends into the cap \( N \), whence it passes down the tube \( O \), and is discharged at \( P \), upon the wick of the lamp \( C \), producing a long bulky; and continuous flame \( Q \), whose extreme temperature is nearly equal to that of melting copper, and admirably fitted for the working of glass.

Mr. Bache in his History of Chemistry, has given an ingenious method of increasing the intensity of any flame, by alcohol: for a description and drawing of which we refer to that valuable work, vol. i. p. 111.

The blow-pipe is of considerable use to the mineral chemist, in the reduction of metallic ores, for giving them extreme heat, and for the ready and convenient working of various apparatus. We have often used it for the determination of the principal contents of metallic parts, and have had occasion to afford a clew to the cause of some unexpected operations.

The efficacy of the blow-pipe in the separation of metal by sublimation, is, however, greatly to be noticed with oxygen gas; a heat that is produced by any equal that of the solar rays concentrated by the bale lens. The apparatus for this purpose consists of the common blow-pipe, with the mouth piece taken out, and connected to a gaurometer, by a flexible tube of elastic gum; the curved tube and terminating part of the blow-pipe ought, however, to be made of glass, the heat produced being so intense as frequently to fuse and inflame those parts of the instrument, if made of brasses. The operator should also be careful to wear spectacles of green glass, in order to protect his eyes from the intolerable white glare, which is so intense as to cause even the flame of a common wax candle to call a very sensible flame. Sometimes a double blow-pipe is made use of in experiments with oxygen gas, by which the effect is considerably increased.

The construction of this is seen in Chemistry, Plate X. fig. 3. The parts \( a \) which joins the tube of the gaurometer, turns air-tight in the collar, \( \theta \), on the end of the tube \( b \), &c. On this tube are two brass boxes, \( b \), into which are fitted the tubes, \( f \), which also turn in air-tight sockets, for the purpose of directing the operation to near the blow-pipe, \( \alpha \), or farther from each other. The blow-pipes \( a \), \( b \), &c. are also provided with a fine jet, \( \lambda \), by which the action of the flame may be varied to suit circumstances of any angle that may be required.

The effect of the pressure which is produced by the blow-pipe, has generally been attributed to the increased intensity of the flame in a small volume of air, the heat being greater when confined than when diffused. Comte, Rammoldi, &c. have, (as will be seen in p. 69,) supposed that the effect of the blow-pipe is due to the former of these causes; and in support of this hypothesis, he mentions the effects of increased heat produced by himself, which are so contrary to the experiments that were conducted in so inaccurate a manner, as to render, in our opinion, very little confidence.

He begins by saying, "A current of air cannot produce heat, without, at the same time, being decomposed; and, in order to its being decomposed in a fire, it must be brought into actual contact with the burning fuel, or at least with the uninflammable inflammable vapour which rises from it. But can it be supposed that there can be anything inflammable, and not actually inflamed, in the clear, bright, and perfectly transparent flame of a wax candle? A blow-pipe has, however, as well an effect when directed against the clear flame of a wax candle, as when it is employed to increase the action of a common glassworker's lamp. To this it may be replied, in the first place, that flame is not transparent, and, secondly, that a considerable quantity of "inflammable matter" is contained in the flame, as is evident from the foot that may be collected by holding a plate of glass or metal over it, so as just to touch the luminous. The count process is to relate that carbonic acid is being driven by a blow-pipe through the "clear, brilliant flame of a wax-candle just kindled," united a small tube of glass in the same time as when the pipe was charged with atmospheric air, or even with oxygen gas. We have repeated these experiments, and observed, that when the blast was directed to the white part of the flame, no well defined horizontal cone was produced by any of the blowpipes; but when carbonic acid, or the lamp, was united through the flame just above the wick, a well defined cone was produced, the interior of which was of a bright blue, and the exterior of a pale yellow; when atmospheric air was employed, the whole cone was of a bright yellow, with oxygen gas, the whole flame was of a dazzling white. The effect of the second in melting glass was greater than that of the first, and the later was much more noticeable."


Blower, a small bellows, an appellation of contempt, for a bellows given to an alchemist.

In the French king's kitchen, there was among other things
Blowing.

Blowing, under the denomination of yeafiusor, or fire-blower. The Roman mint-men were distinguished by the appellation of blowers of gold, silver, and brass, &c. flatores aurii, argentii.

Blower, among dealers in horses, a term used for such horses as wheeze much, without wanting wind. See Wheezing.

Blowing, in Medicine. One method of administering medicines is by inflation, or blowing them into the part by a tube; thus it is they sometimes convey powders into the eye, and sometimes up the nose, for the cure of a polypus.

Blowing, esflatoit, was also a ceremony in the ancient administration of baptism, whereby the catechumen, upon hearing the recension of the priest who administered baptism, is enjoined to blow thrice on the child's face, making the signs of the cross with his hand, and pronouncing the words exi ab eo Satan. Julius Martyn, Tertullian, St. Cyril, and St. Augustin speak of this ceremony as used in their times.

Blowing of a fire arm, is when the touch-hole is run or gulled, and become wide, so that the powder will flame out.

Blowing is also used in speaking of the natural motion or course of the wind.

In the Secu-Language, the wind is said to blow home, or blow through, when it does not cease, or grow less, till it comes past the place where the speaker is. To blow through is sometimes also used to denote, that the wind will be so great as to blow away the fails. When a wind increases so much that they cannot bear any top sails, they lay, they were blown into their courses, i.e. they could only have out the fails so called. To express an extraordinary great wind, they sometimes say, it will blow the fail out of the boltropes.

Blowing is also used in speaking of the force and effect of kindled gunpowder on bodies which happen to be over it. In this sense we say to blow up a house. Engineers at siege make mines wherewith to blow up walls, bastions, and other defences. Powder-mills are apt to blow up by the gunpowders growing hot, and setting fire to the powder dust flying about.

Blowing, among Gardeners, denotes the action of blowers whereby they open and display their leaves. In which sense, blowing amounts to much the same with flowering and blossoming.

Blowing of Glass, one of the methods of forming the divers kinds of works in the glass manufacture. It is performed by dipping the end of an iron pontellego, or blow-pipe, in the melted glass, and blowing through it with the mouth, according to the circumstances of the glass to be blown.

Blowing of tin, a term used by the Cornish miners for the fusion or reduction of tin-ore to the metallic state, after having been roasted to get rid of the sulphur and arsenic.

Blowing-Machine, is used in metallurgical operations on a great scale, for the purpose of exciting combustion in furnaces appropriated for the smelting and reducing of ores.

The history and improvement of machinery of this nature have kept pace with the other branches of our national manufacture, and, in many instances, may be justly said to have gone beyond them.

In the smelting of lead and tin ores, the size and powers of the blowing machines have been left a subject of alteration and improvement, than those used at furnaces and works where iron ore is smelted.

The natural fulibility and easy volatilization of the former metals, in temperatures beyond a bright red heat, have prescribed the size of the furnace, the measure of the blast, and the nature of the fuel.

In the manufacture of copper, air-furnaces are generally used, except where precipitated oxyd of copper is re-revived in small blast-furnaces, resembling those called cupolas, used at iron founderies.

The construction of a lead smelting machine, or what is commonly called a "Lead Mill," is extremely simple. A water wheel is erected in the middle of a square building. To the shaft of this wheel are attached four small wheels of cast iron, about 18 inches diameter. Four pairs of bellows, two pairs on each side of the shaft, are placed at equal distances, and supported upon a strong framing of wood. As the water wheel shaft revolves, the small wheels are carried round, and alternately, or two and two together, depref the extremity of a lever attached by an iron chain to an iron-pole, and the effect of this lever elevates the opposite end of the beam, to which is also attached, by means of another iron chain, the upper or moveable surface of the bellows. The blast produced in this way is in general soft, much inferior in point of either quantity or density to what is found necessary at iron furnaces. The bellows in common measure 10 feet in length, and 5 or 6 feet across the breach, moving about 30 strokes per minute.

In the manufacture of iron it has always been, particularly since the introduction of pit coal, the unceasing object of the iron-maker to improve his blowing apparatus; for uniformly he has found, that in proportion as he can raise air, and make it enter the furnace, so will his weekly quantity of metal be increased.

In the early history of this interesting manufacture, when charcoal of wood was the matter of fuel made use of, the affinities between the latter and the ore were established with more facility. Small furnaces, called boulleries, were sufficiently large, and deemed of profitable capacity, if they produced a bloom or two of iron per day, of 90 to 120 lbs. each.

Hand bellows, and what were called fuel bellows, were sufficiently large for the minor operations. After the general introduction of the refinery furnaces, and the division of the manufacture into the making of pig iron, the refining of this into bar or makable iron, the advantages of a powerful blast were immediately perceived. Water wheels, working two pairs or more of leather bellows, were found to produce powerful effects, and, in consequence, almost every situation that presented a command of materials and a waterfall, became the seat of an iron-mill.

The simple mode of blowing furnaces by means of a trompe was at the same time introduced; but in general it was found, that much greater advantage could be derived from the descent of water upon a wheel, either as to density or quantity, than by means of the bell constructed trompe.

The use of water wheels and leather bellows continued general throughout the iron furnaces, until the principles and mechanism of the steam engine were established upon unerring grounds. This wonderful invention was soon applied with the happiest effect in many situations rich with mineral treasures, but to which nature had denied the advantage of water sufficient to turn machinery. Cylinders, composed of wood, firmly jointed and looped, were first introduced as a substitute for leather bellows; these were soon after replaced by bored cylinders of cast iron; and with
with this great discovery and application of the art of casting, the blowing machine assumed a general and well-proportioned form.

This took place nearly 40 years ago, and continued with a few temporary deviations until the introduction of Bolton and Watt's highly improved engine. The following may serve for an outline of the old blowing steam engine.

A steam cylinder, working with atmospheric preffure from 3 to 7 lbs. upon every square inch of the area of the piston; the diameter of the cylinder for one furnace varied from 23 to 36 inches, and for two furnaces from 36 to 50 inches. Upon the opposite of the man or working beam, sometimes at equal, and sometimes at unequal distances from the centre, was placed the air-pump or blowing cylinder. This was, in common, equal to four or five times the area of the former; and, with the small working power of the steam cylinder, seldom condensed the air beyond $\frac{1}{2}$ to $\frac{1}{3}$ lbs. per square inch. The air-pump was commonly constructed open below, as may be seen in Plate 11, fig. 1. (Chimney.) The plan was sometimes deviated from, and the cylinder inverted. The blowing piston was loaded with weights, and the air expressed by its defcent. In this mode of working, the act of the steam piston, defending in vacuo raised the air-pump piston loaded with weights. Upon the return of the stroke, or while the steam piston ascended in the cylinder, this piston loaded with weights sunk the whole length of the stroke, and by means of this loading, proportioned to the powers of the engine, forced the air either into the regulator or the furnace.

Above, or parallel to the air-pump, was placed the regulating cylinder, as may be seen in the plate above mentioned. This had a valve of communication, which opened every stroke the engine made, and admitted the whole discharge of air. The piston of the cylinder, frequently called the fly piston, was loaded with weights, and kept constantly vibrating; so that when any deficiency of preffure arose from the remitting action of the air-pump piston, the blast was comparatively equalized by the preffure of the fly piston upon the included air. The size of this cylinder was generally in the proportion of 9 to 6 of the air-pump.

The chief objections to this mode of blowing, even when in unavailing use, were founded upon the great inequality of the blast, and a very considerable waste of air that took place at the \textit{foot}, or safety valve, to prevent the fly piston being blown entirely out of the cylinder. The fioret was an opening made in the top of the air-pump cylinder, on which refted a heavy iron valve, faced with leather fluffed with wool; this was, by means of an upright iron rod, attached to a lever, which ran across the top of the regulating cylinder. As soon as the fly piston arose to a certain height, a block of wood, or other contrivance, lifted the one end of the lever, and along with it the valve, to a certain height, and permitted a quantity of the denser air to escape, sufficient to infure the safety of the piston. Notwithstanding these precautions, many accidents and stops ensued; the breaking of a pin, or the loosening of a key, frequently ejected the piston from its cylinder, though loaded with several tons of weight.

Some iron millers, more ingenious than others, contrived to take the space or waste air from the foot, to receive it in an inverted check above water, and blow to its extent弥漫 and fiery sizes. Endeavours of this kind to husband and economic air, raised and condensed at a great expence, were sufficient proofs that a method was still wanting to complete the blowing machine, to render its motions steady and uniform, and to equalize the density of the blast throughout the whole stroke.

This was completely accomplished by inverting large checks, or cylinders, in barrels of wood, stone, or iron. The space between the inner and outer cylinder was constructed of sufficient capacity to oppose to the expansive force of the blast a column of water of equal or superior refilience.

This invention was called the water blast, water preffure, water regulator, &c. The dimensions differed materially from each other; this circumstance being much regulated by convenience, opinion, and the size of the engine.

Plate XIV. fig. 1. (Chimney) represents a ground plan of a very capacious water regulator, sunk in the ground, and built of stone and bricks.

As the inverted check made of plates of cast iron, 40 feet long, 12 feet wide, and 12 feet high. The square superficies of this check is equal to 480 feet, and its cubic contents are 5760 feet. Its weight will amount to nearly 50 tons.

B, the opening to which the air-pipe is attached; 2 feet diameter.

CCCC, open space between the inverted check and stone cylinder, for the column of water to ascend; 35 feet wide.

DDDD, stone or brick-work, of which the great cylinder is built. This work requires to be well jointed, as the motion of the water has a great tendency to open the spaces between the stones. This cylinder is 47 feet long, 19 feet broad, and 14 feet high; its cubic measurement amounting to 12,500 feet, and capable of containing 93,500 gallons wine measure.

eeee, an opening of one foot in breadth left in the middle of the building. This is compactly filled with well trod clay, called pudding, and prevents the escape or circulation of water through the building. Beyond this the common building extends to a sufficient thickness to give general security to the whole.

Fig. 2. is a cross section of the water regulator at B, fig. 1. The letters in this view correspond with those in the plan.

F, the blast pipe from the cylinder entering the check, and branching to the two blast furnaces.

GG, large iron flues, on which the check is supported about two feet from the bottom of the cylinder, at intervals of six feet from each other.

H, loading of how flues, which for this cylinder requires 24 equal in all to 60 tons. If the check weighs 35, then 60 tons of loading will be requisite. This is supposing that the power of the blowing machine is calculated to press equal to 3 lbs. upon every square inch, which many of them are constructed to perform.

To comprehend distinctly in what manner the water regulator performs its functions, and upon the supposition that the compressing power of the engine is equal to 3 lbs. upon every square inch, we shall suppose the engine at rest, and water introduced into the regulator, till it rise to the level of the dotted line $b$, 5 feet from the lower edge of the check, and 7 feet in total depth of water. As soon as the engine is set to work, the compression of the air immediately sets the water in motion; every stroke making the water rise in the space CC, and proportionally falling towards GG, in the interior of the check.

When the inverted check becomes filled with air, and the condensation has reached the maximum of the power of the blowing machine, the water will be found elevated $\frac{3}{4}$ feet to $i$, and the gauge will exhibit a depression in the interior of the check, from $h$ to $k$, $\frac{3}{4}$ feet, making in all 7 feet from $k$ to $i$.

At every turn of the engine stroke the water maintained at $i$ falls a few inches, and elevates itself above $k$ in the interior.
terior of the chest, a similar height. This description takes it for granted, that the spaces CC are equal to the area of the inverted chest; so that every inch of water forced out of the chest adds exactly one inch to the height of the column.

A blowing machine, capable of blowing to purpose two blast furnaces, ought to have the inverted chest of the regulator equal to three or four hundred square feet of area. There cannot arise any error from having this large enough; the want of space and capacity frequently proves a real detriment.

In calculating the proportions and dimensions of water regulators in general, the principle is, to allow the space around the inverted chest equal in point of superficial measurement to the area of the interior of the chest, that the defending column of water may displace no more in the perpendicular ascent, than it is itself absolutely deprest.

If the area or space in which the water rises and falls, is only equal to half the area of the inverted chest, then for every foot of water which is deprested in the bottom of the chest, a column of two feet will be raised and maintained on the outside. On the contrary, if the outside space for water be equal to twice the area, then every foot of water deprested in the chest will only elevate the external column six inches.

It will appear evident from these general facts, that a considerable latitude may at any time be assumed in constructing the water regulator, particularly in old established works, where local circumstances and convenience confine its situation to one spot.

Where it is not inconvenient to use a high perpendicular column of water, the inverted chest may be increased one half, double, or even triple the superficial measurement of the outside space; so that if the power of the blowing machine is equal to 3 lbs upon the square inch, the water in the chest will be deprested 3 1/2 feet nearly, and raised in the perpendicular column 5 feet 3 inches in the fist, 7 feet in the second, and 10 1/2 feet in the last cafe. This plan to suit former establishments may be adopted with considerable modifications, always keeping in mind, that every foot of area gained upon the surface of the water is a material acquisition to the equalizing powers of the regulator.

One imperfection attends this want of equilibrium on the two spaces for the action and re-action of the water,—Whatever space the waters would fall, at the return of the stroke, supposing the inside and outside columns exactly balanced, would in this case be increased one half, double, or triple.

Again, where situation does not admit of the perpendicular column being raised beyond, or not even to the extent of the depression, that takes place within the inverted chest, and where an additional space cannot be procured for an increase of its diameter, an inverted chest of much less height than common may be used, loaded with a material of great weight, such as iron. The water in that case would distribute itself over the surface of the chest, instead of rising in perpendicular height.

One serious objection, however, is made to chests or cylinders, where the eduction pipe approaches within a short space of the surface of the water; namely, water rising in the pipes, and being conveyed along with the air into the furnace. This may take place in two ways; by an insensible and uniform discharge of water into the furnace, making the blast at the tuyere visible, like the respiration of the human body in a frothy day; or in quantity, threatening utter destruction to the furnace and buildings. The former is occasioned by the air from the eduction pipe, at the commencement of the stroke, impinging violently upon the surface of the water, and raising a portion of it in the shape of spray. This is sufficiently divided or entangled in the mass of condensed air before the return of the next stroke, and becomes exprested along with the blast into the furnace. The other hazardous consequence is occasioned chiefly by undulation in the column of water, when the blowing machine is, by derangement or accident, working under its proper power or number of strokes. In these cases, when the pause at the end of the stroke is prolonged, an exhaustion sometimes takes place in the air-pipes, the water rises and is carried in a stream through the blow-pipe into the furnace.

The same casualties may more readily occur, if the surface of the water is upon a level, or nearly so, with the tuyere.

In judicious erections this is most carefully avoided; the surface of water in the inverted chest or cylinder is kept at least, 8, 9, and 10 feet under the level of the tuyere, even at the last period of return, when the water has risen to its greatest height, within.

This very proper precaution ensures an advantage of much importance. A large space is obtained between the top of the chest and the depressed surface of the water; this becomes a spacious reservoir for the condensed air, and, by generating a considerable portion of elasticity, prevents any violent perturbation upon the water at any period of the stroke. The increased distance between the surface of the water, and the pipe which conducts the air from the cylinder, has a complete tendency to prevent the elevation of the aqueous particles, and always ensures a quantity of air comparatively free from moisture.

Upon the principles formerly noticed, it is possible to construct a blowing apparatus of this nature, wherein there could be little or no visible motion in the perpendicular column of water even with the same engine.

Let us suppose a machine of this nature at work, with an accurately balanced column of water, the fall of which, at the return of the stroke, was equal to 12 inches. It is evident, that if the outside space was enlarged 1 1/2 much over its surface as to contain this foot of water, without adding any perceptible height to the column; that included within the chest would, at the return of the stroke, being fed from a more capacious limb, rise a foot, without any sensible diminution taking place in the perpendicular height of the external fluid. It is equally obvious, in this as in every case with water regulators, that the rise and fall of the inside column of water will remain the same, under every modification and form, while the pace and powers of the engine remain the same.

The application of water regulators to blowing machines was soon followed by an attempt to further improvement, by the introduction of the air-vault; the principle of which was to form a receiver of such capacity, that the elasticity or spring of the condensed air would be sufficient to express and equalize the blast during the return of the stroke.

To effect this, an immense magazine was requisite; to erect which of any metallic substance would have been ruinously expensive, and, if constructed of wood, insufficient for retaining the air. It became therefore requisite to try the experiment upon building, or by excavation from the solid rock. In both these ways has the air-vault been tried, and found to produce an excellent effect, as to equalizing the density of the blast; but it has been conceived with such indifferent concomitances as to quantity, that the plan is for the present given up.
**BLOWING.**

Air-vaults were constructed both at the Clyde and Mair-kirk iron works in Scotland, and a constant current of air produced; but nearly one half the quantity lifted by the air-pump escaped through the walls and arched of the building. This was at any time made visible by rubbing foapy water upon the external walls.

At Devon iron works in Scotland, an air-vault was excavated from the solid rock, 72 feet long, 14 feet wide, and 13 feet high; equal to 13,000 cubic feet of cubic measurement. This immense excavation was made comparatively air-tight, by caking the seams and fissures of the rock, plastering and then covering the whole with alternate layers of pitch and clofs wasp paper.

This was the most perfect experiment ever tried upon the air-vault; and if an opinion is to be formed of the perfection of the apparatus by the quantity of iron at one time manufactured, a very trilling portion of air indeed must have been left.

It has been frequently noticed in Scotland, that at works where the materials were in any degree similar, 3000 to 5000 cubic feet of air per minute will, in the course of a week, produce from 20 to 35 tons of pig iron, whatever may be the density at which it is thrown into the furnace.

The Devon furnace at one time averaged 33 tons weekly for 9 months running, and consumed air, per data furnished by Mr. Roebeck in his paper published in Nicholson's Journal, vol. iv. nearly 2400 cubic feet per minute, under a pressure of 2 lbs. per square inch. Notwithstanding this powerful demonstration, strong prejudices were entertained to its disadvantage; and many believed, that any other mode of regulator been attached to the blowing machine, abundance of air would have been obtained to have blown two furnaces equally well. That this idea was incorrect, may be easily gathered by calculation from the area of the air-pump, the length of the working stroke, and the number of strokes per minute, all of which are particularly stated by Mr. Roebeck.

For the general construction of an air-vault formed by building, see Plate XV. (Chemistry.)

Fig. 1. is a section of the vault constructed under the bridge-house, or place where the materials are proportioned, previously to their being thrown into the furnace. One half a blast furnace outline, is seen as connected in point of situation and blast to the air magazine.

A, the termination of the blast pipes that convey the air from the blowing cylinder into the receiver, 3 feet diameter; the length depends upon the contiguity of the engine to the vault.

B B B B, four vaults, 13 feet wide each, 25 feet deep, and 10, 11, 12, and 13 feet high to the springing of the arch; total height to the crown of the arches, 16\(\frac{3}{4}\), 17\(\frac{3}{4}\), 18\(\frac{3}{4}\), and 19\(\frac{3}{4}\) feet. These cells communicate with each other by arched openings in the false wall, which may be distinctly seen in the ground plan at f.

C C, the eduction pipes that convey the air to the furnace; 18 inches diameter.

D, end view of the range of laying pipes at the tycure of the furnace. The dotted lines between D and C are meant to represent the horizontal range of the pipes.

E, part of the outline of a blast furnace to show its proper situation to the air vault.

F F F F, floor of the respective vaults, composed of a mixture of two parts of boring dust, two of fine riddled lime, and one part of fine roasted iron flue, mixed up into platter with water containing a considerable portion of salt.

G G, end walls of bricks or stone, four feet thick.

H H H, lining of brick-work, built in the most accurate manner, with fine riddled mortar, and run every second or third course with mortar made thin and very liquid. These walls are two feet and a half in thickness, care fully plastered, and afterwards covered with several layers of iron paper and piten, to prevent the escape of air. The roofs of the vaults are finished in the same manner.

I, door arch into the vaults; entrance obtained by means of a ladder or wooden staves suspended within.

K, space above the arches, filled with rubbish, to prevent any spring, and to raise the floor to the level of the furnace top.

L, the range of the floor, or acclivity to the furnace mouth.

Fig. 2, is a ground plan of the bridge-house containing the air-vaults, and exhibits one half the ground plan of the furnace through the centre of the tycures arches.

E B B B, corresponding to the same letters in the elevation.

C C, pipes for taking off the blast into the furnace.

D, corresponding to the same letter in the section.

E, main pillar of the furnace, same as E in the section.

G G G G, and H H H, correspond with the same letters in the elevation.

I, square for receiving the furnace hearth.

K, part of the ground view of the hearth, and the approaching blast pipes.

L L L, openings of the cross vaults, which communicate the vaults with each other.

The cubical contents of a vault constructed according to these dimensions, will amount to 20,000 feet.

In general, it may be remarked upon the construction of the blowing machine, that since the period of the introduction of Mr. Watt's engine, the air-pump, or blowing cylinder, has been constructed so as to discharge a cylinder full of air every second and defect of the piston. This, instead of travelling 4 to 5 feet per stroke, more generally moves 8 feet; and the number of cylinders per minute are seldom under 24.

Formerly, in the common atmospheric engine, the movement of the piston from top to bottom, and back again, produced only one cylinder full of air from the air-pump, and the number of cylinders discharged per minute seldom exceeded 16. A steam cylinder of 40 to 44 inches diameter, and an air-pump of 6 feet diameter, the piston moving about 5 feet per stroke, were deemed sufficient in the construction of a blowing machine for two blast furnaces. The quantity of air pumped up and thrown into the furnaces by such an engine seldom exceeded 5000 cubic feet per minute. This, and even a larger quantity, is now thrown into one furnace, and the produce by such means increased from 13 to 25 tons weekly.

The first set of tables following are calculated to show the quantity of air that would be discharged by blowing cylinders of various diameters, the length and number of the strokes being given.

The second set, to show what diameter of blowing cylinder is requisite, with a given steam power, to raise the air to a certain density per square inch. See Engine, Water Regulators, and Regulating Vault.
### BLOWING.

**Table 1.** of blowing cylinders, their capacity, area, and quantity of air discharged by a four-feet stroke, &c.

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<th>Area in sq. rods</th>
<th>Area in sq. feet</th>
<th>Capacity in ft. lift at 40 in. column, per minute</th>
<th>Air discharged at the rate of 50 cylinders per hour</th>
<th>Air discharged at the rate of 50 cylinders per minute</th>
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*Note: The table continues with similar data for different areas and capacities.*
### BLOWING.

**TABLE II.** of Blowing Cylinders, their Area, Capacity, and Quantity of Air, discharged by a Five-Feet Stroke.

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<th>Cylinder No.</th>
<th>Area in Circular Feet.</th>
<th>Area in Four Feet.</th>
<th>Capacity of the Stroke in Cubic Feet.</th>
<th>Air discharged at the Rate of 60 Cubic Feet per Minute.</th>
<th>Air discharged at the Rate of 36 Cubic Feet per Minute.</th>
<th>Air discharged at the Rate of 15 Cubic Feet per Minute.</th>
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</tbody>
</table>
### TABLE III. of Blowing Cylinders, their Area, Capacity, and Quantity of Air discharged by a Six-Feet Stroke.

| Cylinder | Area in square inches | Capacity in cubic feet | Air discharged at the Rate of 33 cubic feet per minute in Cubic Feet | Air discharged at the Rate of 55 cubic feet per minute in Cubic Feet | Air discharged at the Rate of 77 cubic feet per minute in Cubic Feet | Air discharged at the Rate of 100 cubic feet per minute in Cubic Feet | Air discharged at the Rate of 125 cubic feet per minute in Cubic Feet | Air discharged at the Rate of 150 cubic feet per minute in Cubic Feet | Air discharged at the Rate of 175 cubic feet per minute in Cubic Feet |
|----------|-----------------------|-----------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| 31       | 2.75                  | 0.189                 | 0.0581                                          | 0.0973                                          | 0.1365                                          | 0.1757                                          | 0.2149                                          | 0.2541                                          | 0.2933                                          | 0.3325                                          |
| 32       | 3.12                  | 0.229                 | 0.0774                                          | 0.1221                                          | 0.1668                                          | 0.2115                                          | 0.2562                                          | 0.3010                                          | 0.3458                                          | 0.3906                                          |
| 33       | 3.49                  | 0.271                 | 0.0969                                          | 0.1446                                          | 0.1923                                          | 0.2390                                          | 0.2857                                          | 0.3324                                          | 0.3791                                          | 0.4258                                          |
| 34       | 3.87                  | 0.319                 | 0.1164                                          | 0.1696                                          | 0.2223                                          | 0.2750                                          | 0.3278                                          | 0.3806                                          | 0.4333                                          | 0.4860                                          |
| 35       | 4.26                  | 0.368                 | 0.1359                                          | 0.2003                                          | 0.2564                                          | 0.3111                                          | 0.3658                                          | 0.4205                                          | 0.4752                                          | 0.5299                                          |
| 36       | 4.66                  | 0.418                 | 0.1554                                          | 0.2259                                          | 0.2855                                          | 0.3402                                          | 0.3950                                          | 0.4507                                          | 0.5064                                          | 0.5621                                          |
| 37       | 5.07                  | 0.469                 | 0.1749                                          | 0.2625                                          | 0.3256                                          | 0.3803                                          | 0.4350                                          | 0.4907                                          | 0.5464                                          | 0.6021                                          |
| 38       | 5.48                  | 0.519                 | 0.1944                                          | 0.2992                                          | 0.3558                                          | 0.4105                                          | 0.4652                                          | 0.5210                                          | 0.5767                                          | 0.6324                                          |
| 39       | 5.90                  | 0.570                 | 0.2139                                          | 0.3359                                          | 0.4060                                          | 0.4607                                          | 0.5154                                          | 0.5711                                          | 0.6268                                          | 0.6825                                          |
| 40       | 6.32                  | 0.621                 | 0.2334                                          | 0.3726                                          | 0.4551                                          | 0.5095                                          | 0.5642                                          | 0.6200                                          | 0.6757                                          | 0.7314                                          |

**Notes:**
- The table provides the area, capacity, and air discharged at various rates for cylinders with different sizes.
- The rates range from 33 to 175 cubic feet per minute.
- The table is designed to help in calculating the efficiency of air discharge in blowing operations.

**Further Information:**
- Detailed calculations and formulas are included in the main text for further understanding of the data provided.
- The table is a valuable resource for engineers and technicians working in the field of mechanical engineering.
- The table is part of a larger document that likely contains more detailed data and analysis.
### BLOWING.

#### TABLE V. of Blowing Cylinders, their Area, Capacity, and Quantity of Air, discharged by an Eight-Feet Stroke.

<table>
<thead>
<tr>
<th>Area in square inches</th>
<th>Area in square inches</th>
<th>Capacity of the stroke in Cubical feet</th>
<th>Air discharged at the Rate of 15 Cylinders per Minute in Cubical feet</th>
<th>Air discharged at the Rate of 30 Cylinders per Minute in Cubical feet</th>
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BLOWING.

TABLE I. of the Powers of Steam Engines working at the Rate of 5 lbs. Avoirdupois upon every Circular Inch, or 6,456-6 lb. upon every Square Inch of the Steam Piton applicable to Blowing Machinery; and the Areas and Diameters of Blowing Cylinders requisite to raise Air of various Densities from 1 1/2 lb. to 4 lbs. upon each Circular Inch, or from 1 7/8 lb. to 5,292 lbs. Avoirdupois upon each Square Inch of the Air Receiver.

<table>
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<tr>
<th>Area of the Cylinder</th>
<th>Area of the Blowing Cylinder</th>
<th>Blown per Circular Inch</th>
<th>Blown per Square Inch</th>
<th>Area of Blowing Cylinder</th>
<th>Area of Circular Inch</th>
<th>Area of Circular Inch per Square Inch</th>
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4 N 2
### TABLE II. of the Powers of Steam Engines working at the Rate of 6 lbs. Avoiropoise upon every Circular Inch, or 7.639 lb.
upon every Square Inch of the Steam Piston applicable to Blowing Machinery; and the Areas and Diameters of Blowing
Cylinders requisite to raise Air of various Denities from 1/2 lb. to 4 lbs. upon each Circular Inch, or from 1/50 lb. to 5.092 lbs.
Avoiropoise upon each Square Inch of the Air Receiver.

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<th>Diameter of</th>
<th>Flow of Air</th>
<th>Number of Strokes per Minute</th>
<th>Length of Stroke</th>
<th>Area of Blowing Cylinder</th>
<th>Area of Piston</th>
<th>Area of Blowing Cylinder or 1/4 of the Square Inch</th>
<th>Area of Piston or 1/4 of the Square Inch</th>
<th>Total Area of Cylinders</th>
<th>Total Area of Pistons</th>
<th>Total Area of Blowing Cylinder</th>
<th>Total Area of Piston</th>
<th>Total Area of Cylinders and Pistons</th>
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### Notes
- The table provides data on the flow of air, number of strokes per minute, length of stroke, and areas for various diameters of cylinders and pistons.
- The areas are calculated for both the blowing cylinders and pistons, showing the total area of cylinders and pistons combined.
- The table is useful for understanding the design and efficiency of steam engines in relation to the flow of air and the size of the pistons and cylinders.
# BLOWING

**TABLE III.** of the Powers of Steam Engines working at the Rate of 7lbs. Avoirdupois upon every Circular Inch, or 8.91 lbs. upon every Square Inch of the Steam Pitton, applicable to Blowing Machinery; and the Areas and Diameters of Blowing Cylinders requisite to raise Air of various Densities from 1 3/4 lb. to 4 lbs. upon each Circular Inch, or from 1.90 lb. to 5.092 lbs. Avoirdupois upon each Square Inch of the Air Receiver.

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BLOWING.

TABLE IV. of the Powers of Steam Engines working at the Rate of 8lbs. Avoridupoise, upon every Circular Inch, or 10.18 lbs. upon every Square Inch. of the Steam Pitton, applicable to Blowing Machinery; and the Areas and Diameters of Blowing Cylinders requisite to raise Air of various Densities from 1½ lb. to 4 lbs. upon each Circular Inch, or from 1.95 lb. to 5.092 lbs. Avoridupoise upon each Square Inch of the Air Receiver.
TABLE V. of the Powers of Steam Engines working at the Rate of 0 lbs. Avoirdupois, upon every Circular Inch, or 11.45 lb. upon every Square Inch of the Steam Piston applicable to Blowing Machinery; and the Areas and Diameters of Blowing Cylinders requisite to raise Air of various Densities from 0.5 lb. to 0.5 lb. upon each Circular Inch, or from 0.9 lb. to 5.09 lb. Avoirdupois, upon each Square Inch of the Air Receiver.
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BLOWING of a Flower: among Florists, an artificial process in order to bring a flower to display itself with greater perfection and beauty than it would arrive at in the natural way of blowing. The usual method is thus: about April, when the flower begins to put forth, or spinly, as the gardeners call it, they place by each flower a straw flick four feet long, and tie the spinly to its top as they shoot. As soon as the flower-buds appear, they leave only one of the largest on each flower-stem to bloosom. About ten days before the flowers open themselves, the round-podded kinds will begin to crack their hulls on one side, when the careful gardener, with a fine needle, splits or opens the hull on the side opposite to the natural fracture; and about three or four days before the complete opening of the flower, cuts off with a pair of tongs the points on the top of the flower-pod, and supplies the vacancies or openings on each side of the hull with two small pieces of velum or oil-clotch, clipped in between the flower-leaves and the inside of the hull; by such means, the bloosom will display its parts equally on all sides, and be of a regular figure. Besides this care, when the bloosom begins to show its colours, they use to shine it from the extreme heat of the sun with a treasurer-like board, or other device of the like nature, darkened to the flick which supports it: for the flowers as well as fruits, grow larger in the shade, and ripen and decay sooner in the sun.

In Heraldr, a fleur de lys is said to be blown, &c., when its leaves are opened, so that buds appear among the fleurs. The arms of the city of Florence are argent, a fleur de lys blous, gules.

BLOWING-flake, in Zoology, a name given by the people of Virginia to a species of serpent much resembling the European viper, but considerably larger, and very remarkable for its infatuating and extending the surface of its head before it bites. Its wound is very fatal.

BLOUEN RED, in the manufacture of porcelain. See RED.

BLUBBER, in Physiology and Trade, the fat which invels the bodies of all large cetaceous fish, serving to furnish an oil.

The blubber is properly the adip of the animal: it lies immediately under the skin, and over the muscular flesh. In the porpoise, it is firm and full of fibres, and invels the body about an inch thick. In the whale, its thickness is ordinarily six inches; but about the under lip, it is found two or three feet thick. The whole quantity yielded by one of these animals ordinarily amounts to forty or fifty, sometimes to eighty or more hundred weight. Phil. Trans. No. 77. p. 2275.

The use of the blubber to the animal seems to be partly to poise the body, and render it equisponderant to the water; partly to keep off the water at some distance from the blood, the immediate contact whereof would be apt to chill it; and partly also for the same use that cloaths serve us, to keep the fih warm, by reflecting or reverberating the hot freams of the body, and so redoubling the heat; since all fat bodies are, by experience, found less sensible of the impression of cold than lean ones.

Its use in trade and manufactures is to furnish train-oil, which it does by boiling down. Formerly this was performed afohere in the countries where the whales were caught; but of late the fishers do not go afohere, they bring the blubber home, flowed in casks, and boil it down there.

BLUBBER-leaves. The livers of cods, which having been barrelled, yield spontaneously a considerable quantity of oil, which, after the tallow is skimmed off, the residue are called blubber-livers, to be boiled down for more oil.

Vol. IV.
B L U

Blue, Prussian. See Prussian Acid.

Blue, Sirius, a solution of indigo in sulphuric acid. See Indigo.

For an account of the processes for obtaining blue liquors from oak dust and vitriol, from log-wood and verdigris, from log-wood and blue vitriol, from an essential oil and volatile spirit; see Dr. Lewis's Commercial Philosophy Technicum, ed. 4to, ann. 1793, p. 382. 427, 436.

Blue, Stone, or Powder, used in washing of linen, is the same with smalt, either in the lump or powdered.

When the smalt is taken from the pot, it is thrown into a large vessel of cold water: this makes it more tractable and easily powdered. Afterwards, when examined after cooling, it is found to be mixed with a greyish matter resembling ashes, which they call eflbet. This grey matter is separated by washing, and then the blue vitriol is powdered and sifted through fine sieves, to bring it to what we call powder-blue. Phil. Trans. N° 396. See Cobalt.

Blue, turnful, is a blue used in painting on wood, made of the feed of that plant. It is prepared by boiling four ounces of turful in a pint and a half of water wherein lime has been slaked. See Turnful.

Blue, ultramarine. See Lazurite.

There is a blue ultramare, something like that Kentman mentions under the name of ursiniun. It was discovered in a past-mofs in Scotland. This earth is at first of a white colour, and only grows blue by being exposed to the air. It has also some resemblance to what Mr. de la Côte in his Nat. Hist. of Foss. p. 103, calls orbres sindilibs cerulea. It is described very minutely by Mr. Douglas, who gives an account of his various experiments upon it, and recommends it as a cheap paint in gun water, particularly as it is levigated and prepared by nature. See Phil. Trans. vol. viii. N° 27. 2a. 1768.

Many similar specimens of blue earth have been discovered in England and Ireland, and several parts of the continent.

Blue-ball, a name given in some countries to the Core.

Wheat.

Blue-bottle, in Botany. See Centaurea.

Blue-cap, in ichthyology. See Blew-Cap.

Blue John, the common appellation, among the Derbyshire miners, of Fluor-Spar.

Blue Mantle Purveyor of Arms. This officer is by patent a member of the corporation of heralds. Sir Henry Spelman conjectures, that the title was taken from the colour of the mantle of the French kings. This office is said to have been instituted by Henry V., and probably might be coeval with that of Garter, and erected with reference to that order; but although the catalogues place John Wrexworth and others by this title under the reign of Henry V.; Anthony Wood discusses the creation of this office to Henry VI., in his 6th year. Both the Purveyors waited on Burgers, Garter king of arms, into France, and also on the bishop of Chichester and others, ambassadors thither. Previous to that date there are not any entries on record relating to this Officer; but from hence to the present time the succession hath been carried on without any intermission.

Blue Nuts, tiles blues, those of the order of the Antherospermum.

BLUEFIELD's Bay, in Geography, a bay in the island of Jamaica, lying S.E. of Savannah-la-Man, and having good anchorage for large vessels. N. lat. 19° 10' 30". W. long. 79°.

BLUEFIELDS, or Bluefields, Bay, a bay on the western coast of Nicaragua, in New Spain, into which a river of the same name is discharged. N. lat. 11° 20'. W. long. 87°.

BLUEHILL, a township of America, in Hancock county and district of Maine, on the west side of Union river, 344 miles N.E. of Boston, and 13 E. of Penobscot; having 274 inhabitants.

BLUEHILL BAY, a bay of America, formed by Nafken point on the west, and Mount Defant island on the east, and extending northerly to a mountain on the east of Penobscot river, which, from its appearance at sea, is called "Blue hill." Union river discharges itself into this bay.

BLUEFILLS, a range of mounds in New England, the first ridge of which in New Hampshire passes through Rochester, Barrington, and Nottingham.

BLUE Mountains, are mountains of America, in Northampton county, and state of Pennsylvania, extending from S.W. to N.E. and through a small interval across the Delaware. Also, a range of mountains, which run from S.E. to N.W. through Sunny county, in the island of Jamaica. Blue mountain peak is laid to rise 7441 feet above the level of the sea, and measured from its base, about 3,000 feet high. Between this and the north mountain is a large fertile vale. The passage of the Potowmack river through this ridge is one of the most stupendous scenes in nature. See Allegheny Mountain, and Potowmack River.

BLUE Lick, a branch of the licking river in Kentucky, and are situated about 8 miles westerly from the Upper Blue Licks. Both of them are on the N.E. side of the river; and the latter is about 5 miles N. E. of Milers.

BLUE Spring, is between Big Barren and Little Barren river, southern branches of Green river, in M. r. county, Kentucky, about 22 miles south-westerly from sulphur spring, and 13 south of Craig's fort, on the north side of Green river.

BLUE Stone Creek, a small western branch of the Great Kanaway.

BLUE-water river, a river of America, that rises among the southern branches of Duck river, and empties into the Tennessee. It is fed by resorts.

BLUENESS, that quality which denotates a body blue, depending on such a fibre and texture of the parts that compose the surface of a body, as dispose them to reflect the blue or azure rays of light, and those only, to the eye. With respect to the blues of the sky, M. de la Hire, after Leonardo da Vinci, observes, that an black body viwed through a thin white one, gives the effluence of blue; and this he alligns as the reason of the blues of the sky, the immense depth of which being wholly devoid of light, is viewed through the air illuminated and scattered by the sun. For the same reason, he adds, it is that foot mixed with white makes a blue; for white bodies, being always a little transparent, and mixing themselves with a black behind, give the perception of blue. From the same principle he accounts for the blues of the veins on the surface of the skin, though the blood they are filled with be a deep red; for red he observes, unless viewed in a clear, strong light, appears a dark brown, bordering on black; being then in a kind of obscurity in the veins, it must have the effect of a black; and this, viewed through the membrane of the vein and the white skin, will produce the perception of blues.
In the same way did many of the early writers account for the phenomenon of a blue sky; such as Fromondus, Plancius, Otto Guericke, and many others; their opinion long prevailed, and has been adopted by some in more modern times, especially by Wolfius and Mischenthaler. But in the explanation of this phenomenon, Sir Isaac Newton observes that all the vapours, when they begin to condense and coalesce into natural particles, become first of such a bigness as to reflect the azure rays, before they can constitute clouds of any other colour. This, therefore, being the first colour which they begin to reflect, must be that of the finest and most transparent fluxes, in which the vapours are not arrived to a graduufs sufficient to reflect other colours. M. Bouguer, without having recourse to the vapours diffused through the atmosphere, in order to account for the reflection of the blue-making rays, ascribes it to the constitution of the air itself, whereby these fainter-coloured rays are incapable of making their way through any considerable tract of it. And he accounts for these blue shadows, which were first observed by M. Buffon in the year 1731, by the aerial colour of the atmosphere, which enlightens these shadows, and in which the blue rays prevail; whilst the red rays are not reflected so soon, but pass on to the remotest regions of the atmosphere. The abbe Mazeau, in a Memoir of the Society of Berlin, for the year 1732, accounts for the phenomenon of blue shadows by the diminution of light; having observed that, of two shadows which were cast upon a white wall from an opaque body illuminated by the moon, and by a candle at the same time, that which was enlightened by the candle was reddish, and that which was enlightened by the moon was blue. However, the true cause of this appearance seems to be that signified by M. Bouguer, which agrees with the solution given of it about the same time by Mr. Melville. But instead of attributing the different colours of the clouds, as Sir Isaac Newton does, to the different size of those globules into which the vapours are condensed; Mr. Melville proposes, that the clouds only reflect and transmit the sun’s light; and that according to their different altitudes, they may affume all the variety of colours at fun rising and setting, by the laws of the reflected light, as they receive it through a shorter or longer tract of air, and the change produced in the sun’s rays by the quantity of air through which they pass, from white to yellow, from yellow to orange, and lastly to red, may be understood agreeably to this hypothesis, by applying to the atmosphere what Sir Isaac Newton says concerning the colour of transparent liquids in general, and that of the infusion of lignum naphthifium in particular. Edinb. Ill. vol ii. p. 77. Bouguer T. de l’Optique, p. 568. Newm’s Optics, p. 228; or Priestley’s Hist. of Vision &c. p. 435—440.

BLUFF-HEAD, or Bluff-faced, in the Scin Language, is, when a ship has but a timid rake forward on, being built with her trim too straight up.

Bluff-head ships are opposed to those that are sharp-headed. They are short r, lea minded, and tail cheaper.

BLUNTING, or Iron, a method of beautifying that metal sometimes practiced; as for forming buckles, swords, or the like. The manner is thus: take a piece of grind-iron, and whet iron, and rub hard on the work to take off the black surf from it; then heat it in the fire, and as it grows hot, the colour changes by degrees, coming first to a light, then to a dark gold colour, and lastly to a blue. Sometimes they grind and filed oil together, and rub the mixture on the work with a wolen rag, while it is heating, leaving it to cool of itself.

Among sculptors we also find mention of bluing a figure of bronze, by which is meant the heating of it, to prepare it for the application of gold leaf, because of the bluish cast it acquires in the operation.

BLUM, JOACHIM CHRISTIAN, in Eignography, an eminent German poet, was born at Ratzeburg, in 1739, and received the early part of his education in his father’s house, from a lady, who was the governness of his tutors. At the age of eleven years he left his father, and became master of a library, of which he avoided himself to great advantage. During his residence with his mother and tutors, he amused himself with playing hymns on the harpsichord, and with reading moral authors, and reciting orations, which he did in a manner so affecting as to cause his hearers to shed tears. His mother concluded, that he had an inclination to become a clergyman, and with this view placed him in 1754, at a school in Brandenburg, where he manifested by his course of reading, and also by his performances, a strong turn for poetry. In 1757, he removed to the gymnium at Berlin, and gathering up all thoughts of the ministerial office, he devoted himself to the study of philosophy and the belles lettres, indulging himself occasionally in his favourite pursuit. From Berlin he proceeded, in 1759, to Frankfort on the Oder, where he studied for some time under Baumgarten, for whom he professed the highest respect; but when this city fell into the hands of the Russians, he retired to the house of his mother; and as his health was in an infirm and declining state, in consequence of an accident which had almost proved fatal to him in his youth, he determined to continue with his mother, and to devote the remainder of his days to the muses in his native place. Here he closed his life, August 28, 1790. His poetical works were "Lyric Poems," and "Idyls," published at various periods after the year 1765. A dramatic piece, in praise of his native town, entitled "Ratzeburg delivered," was often reprinted at Berlin with applause, but forbidden in compliance with the request of the Swedish ambassador. Blum’s poetry is said to be characterized by softness, simplicity, and correctness, and he ranks among the best poets of Germany. He also published some volumes under the title of "Walks;" two volumes of "Orations;" and a collection of "German Proverbs." His works in general were much read, and approved by persons of the first distinction. The late king of Prussia, Frederick William, honoured him with a very particular token of favour. As Blum’s health required his residence in the country, he purchased, in 1787, a small estate, upon which was a manor in a very ruinous condition; but having in the purchase exhausted almost the whole of his property, he could not repair his house without assistance; and therefore he addressed a poetical epistle to the king, in which he introduced the following lines:
wishes. Besides the Greek and Latin, he well understood the French, Italian, and English languages; and he had studied with great attention the history of the Christian church. Gen. Biog.

BLUMBERG, in Geography, a small town of Germany, in the grand-ducal of Baar.

BLUMENAU, a bailiwick of Germany, in the principality of Calenberg, seated on the Leine.

BLUMENTHAL, a town of Germany, in the circle of Swabia, and commandery of Minau, seated on the river Ach; 8 miles N.E. of Schaffhausen.

BLUMENSTRAST, J. DEO and, in Biography, took his degree of doctor in Medicine in Leyden. Returning thence to Ruffia, his native country, he was soon distinguished by the emperor, who made him archi-biatus, or principal physician to his court. He had also the honour of being appointed the first president of the Royal Academy of Sciences at Petersburg, which had been instituted, Haller says, by his exertions. He died at Moscow at an advanced age, in April 1755, leaving only one publication, which was first printed in the year 1700, 4to. "Medicus Castruis Exercitui Moscovitarum." Haller Bib. Med. Præct. Elyo. Dict. Hiſt.

BLUNICATION, in Geography, a bailiwick of Germany, in the duchy of Bremen.

BLUMIS ALS, a majestic eminence of the Alps, in the canton of Bern, in Switzerland, terminating the valley of Lauterbrunnen, and having at its feet a large glacier, which stretches towards the valley of Gafier. The Blumis Alp, and also the feet of the Alpcheelenhorn, are covered with black schistus; but the granite is not apparent, except at a considerable height. The sides of the Blumis Alp, bordering the glacier, are black slate, in which have been found several Emenites, and a fragment of a Cornu Ammonis, a foot in diameter.

BLUNDERBUSS, in the Military Art, a short sort of fire arm, with a large bore contrived to carry a number of musket or pithol bullets at once. The blunderbus is proper to do execution in a crowd, or to make good a narrow passage, as the door of a house, a fair cafe, or the like.

BLUNT, in Fencing. To fight with blunts, is to exercise or parade with weapons without points or edges.

BLUNTING the angles of a battalion, in the Military Art, signifies to retrench the four corners, and turn the square into an octagon. This is done in order to give an opportunity for presenting the pikes, or firing on all sides, and was a military evolution formerly much in use, but now disused.

BLUSHING, a suffusion or redness of the cheeks, ex- cited by a feve of shame, on account of consciousness of some failure or imperfection. See ELEPHYMA.

Blushing is supposed to be produced from a kind of content or sympathy between several parts of the body, occasioned by the same nervé being extended to them all. Thus the fifth pair of nerves being branched from the brain to the eye, ear, muscles of the lips, cheeks, palate, tongue, and nose; a thing seen or heard, that is shameful, affects the cheeks with blushes, driving the blood into the minute vessels thereof; at the same time that it affects the eye and ear. For the same reason it is, as Dr. Derham observes, that a favoure thing seen or smelt, affects the glands and parts of the mouth; if a thing heard be pleasing, it affects the muscles of the face with laughter; if melancholy, it excites itself on the glands of the eyes, and occasions weeping, &c. And to the same cause Dr. Willis ascribes the pleasure of kissing.

BLUSTERING weather is that where the wind blows with various degrees of strength, attended with a dark sky, rain, snow, &c.

BLUTEAU, DON RAPHAEL, in Biography, a religious theatine, was born of French parents in London in 1628. After having distinguished himself in sacred and profane literature, he visited Portugal and acquired such knowledge of the language as to be able to preach in it with applause. From Portugal he returned to Paris, and was for some time preacher to Henrietta-Maria, queen of England. Upon reviving Portugal, he obtained an office in the inquisition, and became member of the Royal Academy of History. Of his works, the most esteemed is "A Portugueshe and Latin Dictionary," in 8 vols. fol. 1712-1721, to which he added a Supplement in 2 vols. fol. Lisbon. 1727, 1728. He died at Lisbon in 1734, at the advanced age of 96. Morei.

BLUTFINK, in Ornithology, one of the synonymous names of locis pyræhila, the common bullfinch. Frisch. Av.

BLYSING, in Geography, a river of South Wales, which runs into the Tivy, about 3 miles S.S.E. of Cardigan.

BLYTH, in Geography, a small market town of Nottinghamshire, in England, has been the seat of a castle and a priory, but their buildings with their endowments and privileges, being entirely demolished at the dissolution, the town also sunk in the general wreck, and has never since been renovated. The whole parish consists now only of 157 houses, with 570 inhabitants. Here are a small market on Wednesdays, and two annual fairs. The church is a large handsome structure, and contains several ancient monuments. Some of the Greffy family built an hospital here, which bears the name of Blyth-stipple.

BLYTH, or South Blyth, a small sea-port town of Northumberland, in England, is a place that has obtained its sole consequence since the restoration; for, previous to that period, here were scarcely any houses. In the year 1728, its trade had so much increased that above 200 vessels were entered in the custom house books as failing from this port. It is considered as a creek to the port of Newcastle, and its principal trade is in coals. Blyth is 14 miles N.E. of Newcastle, and 28 miles N. of London. The township contains 183 houses, and 1770 inhabitants, of whom 234 are employed in trade. Here is a small market on Saturdays. About three miles south of Blyth is Seaton Delaval, a seat belonging to lord Delaval, whose grandfather, sir Francis Blake Delaval, was an able admiral in the beginning of the last century. He was often projecting some improvements in the ports near his seat, and after furnishing great difficulties, constructed one upon a new plan, which now bears his name.

BMY, in Mafur. See GAMUT.

BOA, in Zoology, a genus of the SERPENT race distinguished by having plates, or undivided feata, both on the belly and beneath the tail; the latter of which, unlike the crocodile, does not terminate in a rattle.

Such is the Linnean character of this genus, the species of which are not very numerous. Gmelin enumerates the following kinds in the Systema Naturæ: contortrix, canina, hippocrepis, contructor, cenchris, ophysara, enydris, murina, scytale, and hortulanus. But in addition to these we are to mention a few other species described by Dr. Patrick Ruffel in a recent publication on the serpents of India, with the observations of Dr. Shaw upon the newly discovered kinds, and several others lately spoken of by continental writers.

Dr. Ruffel in the work above cited, has four new species of
of boa, called, in the Indian language, bungarum pumah, puddy coosie, greel paragoods, or in the young rate cobra musil, and the hornate p.-m. These are the species, fascinata, viperina, linearis, and hornata of Dr. Shaw's zoology. Dr. Shaw has likewise increased the number of the boa by the adoption of a fifth species, crotalus mutus of Linnaeus, which he is induced to remove from the crotalus to this genus, because it is not furnished with a genuine rattle like the rest of that tribe.

But the French writers of the present day have regarded the arrangement of the Swedish naturalist in the amphibious class of animals with much less indulgence, their alterations tending to little less than the subversion of his system. The boa genus, established by Linnaeus, is obviously defective, in one point at least, where nature had herself prescribed those characters which ought not to have escaped the discrimination of the naturalist. Nothing, we must admit, can be more improper, if it could have been avoided, than to include in the same natural family both the venomous and inoffensive kinds of serpents; or, in other words, to unite, under one head, those which, having fangs for the conveyance of poison into the wound inflicted with their bite, are highly dangerous, and such as have no fangs for this purpose, and are therefore comparatively harmless. The first innovation upon the Linnaean genera was made by Lacedepe, whose method has been followed by others; and lastly, by Latreille, with some improvements, in his Natural History of Reptiles.

Latreille retains among his boa those only of the Linnaean species which have no venomous fangs; for the reception of the remainder he establishes the new genus Scytale. This genus forms an intermediate link between the two Linnaean genera boa, and crotalus; having, in common with both, the abdominal plates, and either plates alone, or plates and scales beneath the tail the poisonous fangs removing them from the boa, and the naked tail from the crotalus. F snakes at that have a rattle at the extremity of that part. The boa of Latreille contain the following species: le boa devin (constrictor, Linn.), le boa gant (a species bitherto con- founded with the former), le boa bajoli (boa canina, Linn. and Lacedepe), le boa bipalle (bipale, Linn.), le boa cembris (cembris, Linn.), le boa enhydris (enhydris, Linn.), le boa sphyrie (sphyrie, Linn.), le boa scytale (scytale, Gmel. Schu- cher), le boa broete (brotulana, Linn.), le boa retverso (seba (v. 2. pl. 20. 1.), and le boa tare, a native of the Grecian islands, described by Olivier in his "Voyage dans l'Empire Ottoman."—Thus the Linnaean boa constrictor, a poisonous species, le scytale a jroat of this writer, is removed from among the boa to the genus Scytale, together with another species not before described, le scytale a jroat plate, and the four new species mentioned by Dr. Ruffell belong unquestionably to the same genus, being all of the venomous kind. We have, therefore, five species of the Scytales confounded with the natural family of boa. The boa, taken collectively, exceed in magnitude all the other tribe of serpents. The powers of certain species, like their stature, are prodigious. These enormous kinds are principally the inhabitants of the burning regions of Africa, whose fame, in this respect, was celebrated in ages of remote antiquity. History speaks of the tremendous serpents in terms that stagger credibility; but travellers of our own times, who have had the opportunity of observing these creatures in their native haunts, and, both from the movements of the body, the view of the body, the body, must be of these, the confidence, seeing the strength of the serpent, with the wild, incredible, paralyzing its efforts with the deadly torpor of their poison. Confident in their powers, they attack them openly; oppose their strength to the resist least that of their enemy, with ardor and intelligence; and when they conquer, it is by the manifest superiority of bodily vigour over that of their opponent. It should be observed, that these words of the boa, of which no more than two species are correctly ascertained, although there is reason to believe the number must be greater. Much confusion prevails among travellers who have described these serpents: they have entered largely into the pedigrees of their history, without paying any due regard to the descrip-
tion of the animal's themselves, a circumstance that has hitherto involved this matter in obscurity, and leaves us in considerable doubt as to the real number of distinct species already discovered, and mentioned by those travellers. See Conspectus, &c.

BOA. In Ancient Geography, a place of Italy, on the Aurican way, in the route from Rome to Aricia, through Etruria and the Maritime Alps, Anton Iton.

BOAD. In Geography, a town and port of Hindooftan, in the county of Orissa, near the Mahanundriver; 55 miles S. E. of Sumulpour, and 100 west of Cattack. N. lat. 20° 45'. E. long. 88° 10'.

BODICEA, Boudicca (Tactitus), or Boudicca (as she is called by Dion), in Ancient British History, a queen of the Iceni, celebrated for her misfortunes, and for her formidable, though unsuccessful, resistance to the Roman power in Britain. At the time when the revolt, of which Boadicea was the principal mover, took place, the southern part of the island had tranquilly submitted to the government of the Caesars. Although scarcely 18 years had elapsed since the invasion of Claudius, Britain was already considered an important acquisition. Several flourishing colonies were founded; numerous settlers flocked from the more distant provinces of the empire, and the only expedition which employed the legions, was that undertaken against the fequestrated island of Mona, the principal remaining seat of Druidical superstition. But amidst this seeming security, the oppression excited by individuals excited indignation among the natives. The procurator, Catus Decianus, who, in the absence of the proconsul, possessed the exclusive administration of government, behaved with the utmost irremovable tyranny; and, according to the conception of Tacitus himself, the great men of the nation were treated as slaves, and deprived injudiciously of their estates by this unjust governor. The fear, however, of incurring the imperial retribution, restrained them from expelling their dissatisfaction rather than by murmurs, till the desecration of Praetogus, king of the Iceni, brought matters to a crisis. This monarch, by his attachment to the party of the invaders, had merited the title of friend and ally of the Roman people, and by his last will, had bequeathed his estates as a joint inheritance between the emperor Nero and his two daughters. His policy, if intended as such, failed of the desired effect. The procurator, under pretence of carrying the testament into execution, seized on all the possessions of Praetogus without exception; and as Boadicea dared to murmur against such flagrant injustice, he actually caused herself to be publicly scourged as a slave, and the chastity of her daughters to be violated by his officers.

Such outrages were beyond suffering. The Iceni to a man rose up in arms, headed by Boadicea in person, who to a matron of spirit joined a gift of natural eloquence calculated to inflame the passions of a barbarous multitude. The Trinobantes, and other neighboring nations, alike incensed at the extortions of the procurator, followed the example, and an army of 150,000 invaders being rapidly formed, marched directly against Camulodunum, (supposed to have been Maldon,) the nearest Roman colony. As Decianus could only spare a few soldiers to afflict the inhabitants in its defence, the place was almost instantly formed, and, with a temple lately erected to the divinity of Claudius Cesar, reduced to ashes, all within it being previously massacred. The ninth legion, which had ventured to take the field against the invaders was not attacked and defeated. The infantry were almost totally destroyed. The commander, Feliacus Cerialis, at the head of his cavalry, with difficulty regained his camp, where he carefully intrenched himself; while Catus Decianus, terrified at the consequences of his infamous conduct, made his escape into Gaul, covered with universal odium.

After such a series of ill-fortune, the only hope of the Romans remained vested in the proconsul Suetonius Paulinus, at this time occupied in exterminating the Druids of Mona. On receiving news of the proconsul made by Boadicea, he immediately marched, though by a dangerous route, and through the midst of an hostile country, to Augusta (London), already a considerable place, though not yet dignified with the name of a colony. As he judged this poll untenable, he resolved to unite his scattered forces, accompanied by each of the inhabitants as chieftains to follow his fortunes; but the women and children, the old and infirm, who were left behind, without any other protection than their sex, their age, or their situation afforded, were indiscriminately sacrificed to the fury of the Britons. Verulamium, another colony, shared the same fate. All foreigners were everywhere put to the sword, and the cruelties, said by Dion to have been exercised upon some of the sufferers, are shocking beyond description.

The rebellion had now attained its utmost height. Three Roman stations laid in ashes, and the blood profusely poured of 70,000 of her persecutors, had emplotted all the wrongs of Boadicea. The whole eastern part of the island was in possession of her partizans, and her forces in arms had increased to the amazing number of 200,000, when Suetonius, having taken every measure prudence could suggest in his circumstances, prepared to check this torrent in its course. The proconsul, although accursed, and perhaps with justice, of pride and executive cruelty, yet possessed the most splendid military talents. During the last reign he had signified himself, when commander in Africa, by a complete victory over the rebellious Mauritanians. Nero rewarded his bravery by naming him to the government of Britain. The late reduction of Mona had increased his celebrity; and he appears to have been the only general then in the empire, Corbulo probably excepted, equal to the task of reducing the insurrection raised by Boadicea. His situation was, however, extremely critical. It was in vain that he dispatched instructions to Pannius Pollianus, who commanded the second legion, to march to his assistance. Pannius, in consequence of some difference with his general, or actuated by a secret jealousy, refused to move, in direct disobedience to orders. Thus Suetonius saw his whole force reduced to the fourteenth legion, Gemina, and the Vexillarii of the twentieth, which, added to a few auxiliary cohorts, only amounted to about 15,000 men. With his army, small as it was, he determined on hazarding a battle, and therefore waited the approach of the Britons on a narrow spot of ground, opening in his front into an extensive plain, while his rear was protected by a thick wood. According to the usual disposition observed by the Roman armies, the legions were stationed in the center, flanked by the light armed and auxiliary cohorts; the wings being composed of cavalry. Suetonius did not tarry long in expectation of the enemy. The Britons soon appeared, covering the plain in immense numbers, their wives and children, who had accompanied them to become spectators of a victory already considered as certain, were mounted in heaps on waggons, encircling the field in their rear, like an amphitheatre. Boadicea, with her two daughters, drove in a chariot along the ranks, encouraging her troops in animated language. She renewed the detail of Roman injustice, besought vengeance for the wrongs inflicted by herself and her family, magnified the importance of the victory she had already gained, and adored her followers.
Boa

Boa

followers that their enemies, forsaken by all the gods, would never be able to endure even their threat of over. She finished by exciting them to conquer or die which, she added, was her own resolution. Into his mind, she did not neglect to animate as manly as possible with the admiration and cheerful confidence with which it was received convinced him that he had nothing to hope from the bravery and discipline of his followers.

The Britons came on, uttering loud shouts, menaces, and songs of victory, while the Romans, whose victory was private and at the required distance, gave a first discharge of the pious with terrible effect. Preferring the advantage of the ground, they received the attack of the Britons with such defiance, at checking its impetuousity; till, having expended all their Jones, not without dreadful carnage of their enemy, they rushed forward from all parts at once. Observing the form of a wedge, the more easily to penetrate such an impenetrable multitude. This charge was followed by the Britons with equal ardour. The first ranks of their pikes were instantly borne down, and they in pieces, met the first charge to surround the Romans, a second commenced. The British war-chariots, whenever they descended in battle, among their enemies, occasioned consternation on the Britons, ordering his men to press the Britons, as the huddled bodies of the drivers, by degrees desolate all. From these troublesome invaders. The action was long maintained with fury on both sides, the Britons, though destitute of order or discipline, fighting with great chivalry and courage; but, finally, the superior hand, coolness, and service of the Romans, bore down every opposition. Prodding its numbers perilous beneath the viole of the legs, or by the charge of the cavalry, who trampled all before them, while the crowds that endeavoured to save themselves by flight, met with an impenetrable impendence in their own wagons, which enclosed them in form of a box. Here the slaughter was terrible, for mercy in the circumstances of Sertorius, would have been in the highest degree imprudent. The Romans, in the heat of their fury, spared neither age nor sex. Even the bolds of burden, struck through with darts, increased the horrors of the scene, and the heaps of dead, which covered the plain, the fields, and the surrounding forests. Upwards of 80,000 Britons are computed to have perished on this occasion; while of the Romans about 400 were killed, and severely wounded.

Few victories, even in the most flourishing ages of the republic, deserve to be compared with this of Sertorius. Never had any been more decisive. The remaining rebels, terrified at the dreadful slaughter, that had occurred, dispersed into their respective districts, and Sertorius himself retired soon after the battle, either to die or to live; or as the prevailing opinion, the end of his days by poison. Sertorius' death, which submerged had prevented the second legion from falling in the triumph of their country, fell on his own head, thus avoiding the punishment and disgrace which awaited him on. The vigour with which, though accompanied by acts of the most terrible severity, Sertorius pursued the destroyers, restored tranquility to the whole island before the ensuing spring. The few signs of individuals, and the jealousy of his excreble sovereignty, occasioned his subsequent recall from his government; yet the triumphs obtained under his auspices, conferred everlasting honour and renown both on his own name and that of the legion he commanded.

Boadicea is described by Dion Cassius as a woman of large stature, strong and well proportioned in her limbs, of a manly and stern countenance, bashful, authoritative voice, and posing beauriful golden hair, which reached down below her waist. That she was possessed of uncommon abilities, and had many talents to assist her, is evident from the speeches with which she cut off the Roman generals, and which were given to the historian by his informants. She allowed the authority of Tacitus, referring to her speech. Such passages of Dion as are most necessary to elucidate the situation. The defeat and death of Boadicea are laid to have happened A.D. 61. Tacit. Ann. iv. xiv. c. 32—37. Dion Cassius, Hist. Rom. 16. i. 5. c. 1—12.

Boa or Boa, in Geography, called also Oman, or men, or men of the sea, are a sort of itinerant fishermen in the East Indies, said to have originally from Arabia, at the castle entrance of the straits of Malacca, though some are of opinion, that they must have come either from China or Japan. They live chiefly in small covered boats, on the coasts of Borneo, Celebes, and the adjacent islands. Others dwell near the sea, on these islands: their boats being called on poles, at a little distance in the sea, and always at the mouth of rivers. They are Mahometans: and have a language of their own, but no written character. Many Boas are settled on the north west coast of Borneo, who not only fish but make fish, and trade in small boats along the coast. Some of their boats are from 15 to 20 tons burden, and carry from 15 to 20 men and 15 to 20 men, and form, in some places, a fleet of a hundred. Others of them are about 5 to 6 tons burden, which are managed by women, even in heavy seas. Their method of making salt is as follows; they gather sea-water, burn them, make a large of ashes, filter it, and form a little kind of salt in square pieces, by boiling it in pans made of the bark of the anghar, or cangara-tree; these pieces of salt are carried to the town, and paid as a currency for money. Those who a salt in the north-west coast of Borneo used to fish near the town at Batamanghan with rice, fowl, and other provisions. Many of them are settled at the mouth of the river of Palae, who employ themselves chiefly in catching small fishes with hand-nets, which they push through the mud; the fish are, after being well washed with water, are exposed to dry. They are then beat in a mortar, and made into a kind of paste, called bangbang, which has a strong smell, and is much in request all over India. These last Boas are to be considered as distinct from the former Boas, which are distributed all over the islands. They are described as fishing for ari, i.e. the swallows, or f-a, flags, which they take in seven or eight fathoms water. When they see the swallow in clear water, they strike it with an instrument, consisting of four-bearded iron prods fixed among an almost cylindrical stone, rather small at one end than at the other, about 18 inches long; an iron net is fixed at the end of the stone, next the point of the prod. The swallow is dried in the sun, and sent to the Chinese market. They also dive for it, the bell being found in deep water. The black is reputed the best; but there is some of a lighter colour, found only in deep water, which is more valued
valued in China than the black, and sold even for 40 dollars a picol; some of the pieces weigh half a pound. The white, caught in shallow water and on the dry sand, among coral rocks, is the worst; its value being about four or five dollars a picol. The Boadjoos are very useful to the Dutch East India company, in carrying intelligence speedily from place to place.


Boadoda Bokevuz, in the Turkish Military Orders, an officer of the janizaries, whose business it is to walk every day about the principal parts of the city, with a number of janizaries to attend him, to keep order and see that all things are regular, even to the doors. This office is for three months, and from this the person is usually advanced to be a ferman.

Boe, in Ancient Geography, a town of Peloponnesus in Laconia, at the extremity of the Eacotian gulf. Diana was particularly worshiped in this place; Apollo and Eucubius had their respective chapels here. At some flood from this city was a temple of Seraphis and Isis. Paulan. Boaergius, a river, or rather torrent, of Greece, in the country of the Epicomenian Locrians, according to Ptolemy. Strabo says, that it watered the town of Thynion. Also, a town of the fame country, situate to the west, on the confines of Phocis.

Boanerges, i.e. Sons of Thunder, in Scripture History, a name given by our Lord to the two apostles James and John (Mark, iii. 17.) which some have erroneously supposed to be an appellation of reproach, intimating a fierce and furious temper; whereas it is much more reasonable to consider it, with others, as a title of honor, prophetically representing the resolution and courage with which they would openly and boldly declare the great truths of the gospel, when they were made fully acquainted with them. How well they deferred this title, sufficiently appears in the sequel of their history. See James, and John.

Boans, in Zoology, a species of Rana, or frog, the body of which is smooth, marked with conspicuous spots beneath; and the feet palmed. Gmelin. Two varieties of this kind are considered; 2, having the upper part of the body blackish, lead color, and with, the body inclined to orange. Laurent, Amph. &c.

This kind inhabits America, and differs from rana arbores, the tree-frog, to which it is nearly allied, according to Gmelin, in having all the feet webbed, and the body spotted with white. Much confusion prevails respecting the Linnaeus species, boans. Dr. Shaw supposes it to be the same as the ranar maxima of that author, probably in a younger state. He mentions likewise another supposed variety, the rana virginiol aerata of Seba.

Boar, the wild boar or hog from whence the common hog derives its origin. See Srofa sus. The male of the tame hog is also called the boar.

The wild boar is a native of almost all the temperate parts of Europe and Asia, and is also found in the upper parts of Africa. Formerly it was an inhabitant of this country, as appears from the laws of Howell Dla, who permitted his grand huntsman to chase that animal from the middle of November to the beginning of December. (Leges Wallace, 41.) There are also many places in Wales that retain the name Penarth, or The Boar’s Head, to this day. William the Conqueror punished with the loss of their eyes any that were convicted of killing the wild boar, the hog, or the roebuck. (Leges Saxon. 292.) And Fitz-Stephen tells us, that the wild boar, which in his time grew on the north side of London, was the retreat of flags, fallow deer, wild boars, and hares. Charles I. turned out wild boars in the New Forest, Hampshire; but these were destroyed in the civil wars. (Iennaat.) In France, Germany, Poland, and other countries on the European continent, they are still common, and the hunting of them is a principal amusement among parties of the gentry. Boar-hunting is a favourite diversion also in other distant parts of the world.

These animals are found in the hilly districts of the Pamara and the Volga, in Russia, on the confines of the river Ural in Daoria, and about the Irtysh. Between the Ural and the Yamba they are very numerous, and are hunted in winter by the Cossacks, not without danger, with dogs, and sometimes killed with carbines, and sometimes with hauses. Although they feed solely on the roots of sea-weed and fedge, they grow to such an extraordinary size, that they are frequently found weighing upwards of six hundred pounds; their bacon is nearly four inches thick in fat, though their fleshes in general dry and firm and well-flavoured.

Somnini thinks it probable (see his Travels in Upper and Lower Egypt, p. 348.) that the wild boars of Egypt are not the same with those in Europe. The great difference of climate, and the still greater difference of situation, must have occasioned at least some varieties in the species of these animals. More multiplied in temperate or cold countries, which appear more suitable to their nature, they inhabit the thick recesses of the forests, where they can find abundance of food: They never leave the woods but to pafs from one to another, or to ravage the growing crops, and these predatory excursions are undertaken only by night. In general, they retire to the darkest and cloest places at the rising of the sun, the brightness and heat of which they seem to dread. The wild boar of Egypt, on the contrary, has no shelter. Continually exposed to the rays of a burning sun, he roams over the hottest sands, where he with difficulty finds a few scattered shrubs, which afford him a scanty subsistence, and scarcely any shade. He is also frequently seen in the deserts of Nubia, which is the retreat of a greater number of animals than any other part of the deserts, on account of the streams of water it contains, and of the plants that grow on their banks. These boars are solitary, though a general want of food sometimes drives them into the environs of the lakes of Natron. As the Maometans and Copts do not eat the flesh of the wild boar more than that of the hog, and hold both these animals in equal toleration, it was impossible, says this writer, to procure a wild boar in Egypt, at least without seeking it in the desert. Upon the whole he concludes, that they are not the same as those of Europe. It is perhaps, he adds, in this sense only that we must understand the passages of Aristotle (Hist. Nat. i. viii. c. 24.), and Pliny (Hist. Nat. i. viii. c. 32.), who have asserted that there are no wild boars in Africa. Wild boars, says Buffon, are as common in Asia and Africa as in Europe. But he has given an account and a drawing of an African wild boar, which is remarkable for several particular characters; and hence there is reason to believe, that the "hanziote" of Egypt is the same animal as the wild boar of Africa.

Among hunters, the wild boar has several names according to its different ages: The first year it is called a pig of the lauder; the second, a hog; the third, a hog-feer; and the fourth, a boar. When leaving the lauder, he is called a finger, or fanger. The wild boar inhabits woods, living on roots, mulls, acorns, and other vegetables. Though glutinous, they do not attack other animals to devour them; but they eat flesh when they meet with it. They have been seen to eat hogs’ flesh; and the skin of the deer,
BOAR.

The wild boar is hunted with dogs, or killed by surprise during the night when the moon shines. As he flies swiftly, leaves a strong odour behind him, and defends himself against the dogs, and often wounds them dangerously, a few hunting dogs are unnecessary, and would have their nose spoiled, and acquire a habit of moving slowly by hunting him. Mailiffs, with very little training, are sufficient. The oldest boars, which are known by the track of their feet, should alone be hunted: a young boar of three years is difficult to be attacked, because he runs very fast without flopping; but the old boars do not run far, allow the dogs to come near, and often stop to repel them. During the day, the boar commonly keeps in his hold, which is the most frequented part of the woods, and comes out by night in quest of food; and in summer, when the grain is ripe, it is easy to surprise him among the cultivated fields, which he frequents every night.

The boar lives to twenty-five or thirty years, if he escapes accidents. The time of going to rut is in December, and lasts about three weeks. They feed on all sorts of fruits, and on the roots of many plants; the root of fern, in particular, seems a great favourite with them; and when they frequent places near the fen-coat, they will defend to the thores, and demolish shell-fish. Their general places of rest are among the thickets bushes that can be found, and they are not easily put out of them, but will hold the same a long time. In April and May they sleep more than at any other time of the year, and this is therefore the successful time for taking them in the toils. When a boar is encroaching of the thicket, he always goes from it, if possible, the same way by which he came to it; and when he is once up, he will never stop till he comes to some place of greater security. If it happens that a faun her of them are found together, when any one breaks away, the rest will follow the same way. When the boar is hunted in the wood where he was bred, he will scarce ever he brought to quit it; he will sometimes make towards the hides, to listen to the noise of the dogs, but retires into the middle again, and finally dies or escapes there. When it happens that a boar runs a-head, he will not be flopped or put out of his way by men or beasts, so long as he has strength left. He makes no doubles or croffings, when chaced; and when killed, makes no noise; if an old boar; but the fows and pigs will squeak when wounded.

The reason for hunting the boar begins in September, and ends in December when they go to rut. If it be a large boar, and one that has him long at rest, he must be hunted with a great number of dogs, and those such as will keep close to him; and the huntman, with his spear, should always be riding in among them and challenging the boar as often as he can to discourage him. Such a boar as this, with five or six couple of dogs, will run to the first convenient place of shelter, and there stand at bay, and make at them as they attempt to come up with him. There ought always to be relays also for the belt and haunch-bounds in the kennel; for if they are young eager dogs, they will be apt to feize him, and be killed or spilled, before the rest come up. The putting of collars with bells about the dogs' neck is a great security for them; for, the boar will not soon strike at them when they have thee, but will rather run before them. The huntmen generally kill the boar with their swords or spears; but great caution is necessary in making the blows, for he is very apt to catch them upon his front, or tusk, and, if wounded and not killed, he will attack the huntman in the most furious manner. The places in which the wound is to be given with the spear, are either between the eyes in the middle of the forehead, or in the shoulders; both these places make the wound mortal. When this creature makes at the hunter, his safety consists merely in courage and address; if he flies for it, he is surely overtaken and killed; if the boar comes straight up he is to be received at the point of the spear; but if he makes doubles and windings, he is to be watched very cautiously, for he will attempt getting hold of the spear in his mouth, and if he does so, nothing can have the huntman but another person's attacking him behind. He will, on this, attack the second person, and the first must then attack him again. Two people will thus have enough to do with him; and were it not for the forks of the boar-spear that make it impossible to press forward upon them, the huntman, who gives the creature his death's wound, would seldom escape falling a facicide to his revenge for it.

The modern way of boar-hunting is generally to dispatch the creature by all the huntmen striking him at once; but the ancient Roman way was for a person on foot, armed with a spear to keep the creature at bay; and in this case the boar would run of himself upon the spear to come at the huntman, and push forward till the spear pierced him through.

The hinder claws of a boar are called guards. In the corn he is said to feed; in the meadows or fallow-fields, to root, swarm, or form; and in a close to graze. The boar is followed with as many teeth as he will ever have; his teeth increasing only in bigness, not in number. Among these there are four called tusks, or tucks, the two biggest of which are of no use to him when he strikes, serving only to what the two lowest, which are his habitual weapons of defence. As the boar advances in age, he becomes less dangerous, on account of the growth of these tucks, which turn up or take such a curvature, as rather to impede than afflit him in wounding his adversary. The huge pian boar, or hog, is a still more fierce and dangerous animal than the kind found in Europe. In habits and manners they are pretty much the same, although specifically different; and, like the common boar, is capable of inflicting the most tremendous wounds with its tusks.

The flesh of the boar was esteemed a delicacy among the ancient Romans; a boar served up whole was a dish of state. The boar was sometimes also the military ensign borne by the Roman armies in lieu of the eagle. Certain writers of modern date speak of the flesh being unwholesome, except to those with athletic constitutions.

A remarkable circumstance concerning the wild boar is related by Sommii. In the year 1577, an animal of this kind, of a most extraordinary size, was killed in the neighborhood of Cognac, in Angoumois, which had many times escaped from the hunters, had received many gun-shot wounds, and had cut the hays of several dogs and men each time of attacking him. When this animal was at length slain, several bullets are said to have been found b-
tween his skin and flesh. Had not the above account been
given by hunters of distinguished order, and too well ac-
quainted with these animals to have made any mistake, it
might have been imagined, that this formidable creature,
which had long continued its ravages in the park of Cog-
nac, belonged to a different species. It was of an enormous
size, with a very long head, a very sharp or pointed snout,
and its mouth was armed with teeth of a very singular
form. The hairs of the body were white; those of the head
yellowish; the neck marked with a black band in form of
a cranv; and the ears large and straight; and what
appears surprising, considering its size, it was of uncom-
mon swiftness. For a further history of this animal, see
Scrofa.

Boar, in the Mange. A horse is said to bow when he
shoots out his nose as high as his ears, and tosses in the
wind.

Board, a piece of timber fawed thin, for the purpoes of
building. See Timber.

We say, a deal-board, an oak-board, &c. Boards thicker
than ordinary are called planks. Boards formed ready for
the cooper's use are called clap-boards. We have also mill-
boards, and scale-board, shaved very thin, for cafes, hand-
bases, &c. Deal-boards are generally imported into Eng-
land ready fawed, because they are prepared cheaper abroad,
by means of saw mills. Clap-boards are imported from
Sweden and Dantzick. Oak-boards chiefly from Sweden
and Holland; some from Dantzick. Pipe-boards are
brought from Dantzick. We also import white boards for
fioce-makers; mill and scale-boards, palie-boards, &c. for
divers artificers. Scale-board is a thinner fort, used for the
covers of primers, thin boxes, and the like. It is fawed
with mills, and imported from Hamburg.

Board, feather-edged, graining, fog, post, found, trail, cofle,
weather. See the several adjectives.

Board, is also used for a kind of table or bench, whereon
several artificers perform their work.

In this sense, we say a work-board, a chop-board, a tay-
lor's-board, &c.

Board, is also used for a flat machine, or frame, used in
certain games, and the like.

In this sense, we say a draught-board, a chefs-board, a
feel-board, and the like.

Boards, in Book-binding. See Book-binding.

Board, bureau, is also used for an office where accounts
are taken, payments ordered, and the like.

In this sense, we say the board of works, board of ordi-
nance, board of treasury, and the like.

Board of green cloth. See Green-cloth.

Board of Control, was first instituted in 1784, by flat.
24 Geo. III. ss. 2. c. 25. with a view of directing and aid-
ing the East India company, in the executive government of
India, and establishing a power of control in this kingdom.
This board was further established and regulated by the flat.
33 Geo. III. c. 52. the operation of which commenced in In-
da on the 1st of February 1794. By the former act fix
perons were to be nominated by the king, as commissioners
for the affairs of India; but by the latter, the number, in-
stead of being limited to fix privy-councillors, is indefinite,
depending upon the king's pleasure; of which number the
two principal secretaries of State, and the chancellor of the
exchequer are to be three; and his majesty, if he pleases,
may add to the lift two commissioners, not of the privy-
council; and the person first named in the king's commis-
sion is to be president. The king may give 5000l. a year among
fuch of the commissioners as he pleases; which, together
with the salary of the secretary and officers, and other ex-
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polity, established in 1723, composed of eight portions of experience in commerce and navigation, where all papers and proposals relating to the improvement of trade are considered, and all difficulties which occur in affairs of navigation and commerce, either within or without the realm, are discussed.

Board-wages, denote a certain annual sum allowed to household servants for maintenance. Board-wages, granted to the menial officers and servants of the crown, commenced in 1629, when the necessities of king Charles obliged him to retrace the expense of his household, by abolishing the greatest part of the daily tables in his palace, which were eighty in number, and substituting this annual allowance in their room.

Board, or Aboard, in the Sea Language, is used in speaking of things within a ship or other vessel.

Hence, to go aboard signifies to go into the ship; to have ever-board, is to throw a thing out of the vessel into the sea; to slip by the board, is to slip down by the ship's side; to fall a-board of, is to strike or encounter another ship, when one or both are in motion; to keep the land a-board, or to keep hold of the land, is to steer near to, or in sight of the land; board and board, is when two ships come to near as to touch one another, or when they lie by side. Weather-board, is that side of a ship which is to windward. To board a ship, is to enter an enemy's ship in an engagement. See Boarding, infra.

Board denotes the distance run by a ship at one tack; and hence to make a board, or as it is otherwise expressed, to board it up to a place, is to turn to windward; and to beat sometimes upon one tack, and sometimes upon another; in which it is to be noted, that the further you stand off to one point of the compass, the better board you will make; and that it is better making long boards than short ones, if you have sea-room. A long board is when you stand a great way off before you tack or turn; a short board is when you stand off a little; a good board is when a ship does not go to leeward of her course, or advances much at one tack, and fails upon a straight line. To leave a land on back-board, is to leave it a-tack, or behind the back-board, being that which in boats or ships, we lean our backs against. A-board main-tack, the order to draw the main-tack; i.e. the lower corner of the main-fall, down to the chefs-tree. See Chess-tree.

Board, Lar, and Starboard. See Layboard and Starboard.

BOARDED Floor. See Floor.

BOARDING, in Naval Tactics, denotes the art of approaching the ship of an enemy so near as to admit of the grappling which are fixed on the lower yard-arms, at the forecastle, gang-ways, &c. being thrown into it, for the purpose of securing the vessels together, and of entering her decks, with a detachment of armed men. The method of conducting or of avoiding this kind of attack depends upon the relative situation of the contending ships; and varies, as it is to be performed to windward, to leeward, with the wind at large, or when the ship proposed to be boarded is at anchor.

In the first case, when the enemy's ship keeps her wind under an easy fall, and is overtaken in a chase by those who intend to board her, the vessel of the latter will get on the weather-quarter of the former, within half a pilothole. She should then begin and continue a brisk action, so that the smoke of the cannon and musketry of both ships may conceal her manoeuvres; and, under the cover of this cloud, she should increase her fall, if she has not way enough, in order to augment her velocity and the rapidity of her movement, that she may more readily lay on board the enemy, on the weather-side, either exactly abreast or a little abaft. This may be easily done, by edging down suddenly upon him, but avoiding being raked by the enemy's fire. By this manœuvre the grappling will be on board of the adverse ship, before or very soon after the suspect the design of the boarders. In this situation, the vessel proposed to be boarded can recur only to one precipitous expedition, which, duly observed by the boarder, will be of little or no avail. For when she braces sharp a-back her head falls, to cause the ship's falling off, and figures those aft, to give her stern-way, the boarder, by performing boldly the same manœuvre, will be as well situated for boarding as before; provided the boarding ship feels the impulse of her fails and helm, which ought to put a-weather, and kept to till the ship's head-way ceases, when it is to be put a-lee, to affill her in falling off, in order to board the enemy to lee-ward; for the boarder ought to be on the quarter of the other, since at the moment the two ships were right before the wind, the who was directly to windward and wished to board, had only to continue her movement of rotation, and render her velocity equal to that of her adversary, by shortening sail in order not to pass her. If, therefore, the circular motion is kept up by the boarder, which at first caused him to fall off, and now brings him to the wind on the other tack, he will join the enemy to lee-ward; for it is evident that, if this motion of turning be more rapid than that of the ship which wishes to avoid boarding, the boarder will close with her before she can range to the wind on the other tack, since the boarder comes round with greater celerity. However, if the ship which fears boarding was preceeded thus closely, she could make no other attempt than to throw once more all her fails to the mail, her bringing them only perpendicular to the keel to give her stern-way, and putting the helm a-weather, to keep her to the wind, as soon as her head-way ceases; observing that, as she is to windward, she may be thus driven on the boarder, who watches for her under her lee. But necessity obliges her to adopt this only expedient; because, if she could go a- stern with sufficient velocity, she might let the boarder pass a-head, veer under his stern, and rake him, if he does not anticipate this manœuvre, and as quickly manœuvre in the same manner; the great velocity with which he comes to the wind, and goes a-head, his fails being still full, reducing him to this state, which may prevent his persifling in the design of boarding. Nevertheless the boarder may attain his purpose, if he throws all his fails a-back at the same time as the ship to windward; because, the attacked ship dropping to leeward, and having stern-way first, approaches the boarder, who has preferred his position on the quarter, and longer kept his helm, by having gone a- stern somewhat later than the weather ship. It should also be observed, that when the two ships are right before the wind, if the vessel which fears boarding moves more quickly to the wind than the one which attacks, she will avoid it, as the retreating ship will be close to the wind before the other, and able to get a-head of her, by making all fail to keep her wind, or to heave in flays, and get upon the other tack. This last movement, however, is disadvantageous; because it will prevent the stern to a ship, which will avail itself of that situation, and rake her, and this may be more destructive than a well opposed attack by boarding. After all, if the ship that is inclined to board fails better than the other, she will always have it in her power to execute her purpose, if she is as well manœuvred as the ship which endeavors to escape.

In the second case of boarding to leeward, when close to the wind, the boarder should arrive within pilot shot, close in
boarding.

the wake, or, at most, to the weather quarter of the ship against which the attack is meditated; taking care to continue steering, so as not to be raked by any of the guns that lie long to the quarter on which he stands. In order to come up with his adversary, he must edge away a little, and range round aft, to clothe upon the enemy's lee-quarter, that his bow-head may almost touch her quarter-gallery. When the ship has shaft sufficiently a-head, and is parallel to that of the adversary, the fore castle being a-breast of the enemy's mainmast, the mizen and fore-fall feet are to be well hauled aft, the helm put hard a-lee, and the head-feetets a-back; then, the ship, coming rapidly to the wind, shivers her bows, and closes with the opposing vessel side to side. In executing this maneuvre, which cannot fail to succeed with the advantage of failing, great attention is necessary; because, if at this moment the weather-ship, which wishes to avoid being boarded, either sets her courses, or lays all along a-back which she had fart, the may chance to break the grapples, if the falls of the boarding vessel have not been trimmed like those of the other; for, by making more fall if the wind be a little fresh, the will shoo a-head through the water, and drag the bow-wood with such force as to break the chains or hawser by which the two ships are confined together. By laying all along the mast the boarded vessel is the more likely to succeed, since the falls of one vessel will be full, while those of the other are a-back.

This mode of boarding may be avoided, if the boarder does not pay strict attention to his own manœuvres, as well as to those of his adversary; and it may be more readily avoided, if the adversary's vessel braces her head-falls sharp a-back, setting only, if necessary, the fore-fall, at the same instant laying to the wind or hivering, according to the necessity for more or less leen-way, all those which arc a-shalt, and putting the helm hard a-lee. This is to be executed, when the boarder is about a ship's length a-lee of the other vessel. The quickness of this operation, and the rapid veering of the weather-ship, may bring the boarding vessel, which is a little to leeward or a-lee of the other, into the most dangerous situation, if she does not manœuvre in the same manner, and with equal celerity; as the boarder's falls being full, keep up his velocity, and may, before he can veer, engage his bow-wood in the main-shrouds of the enemy, who pays short round on her head. Those who wish to board a ship, and to engage the enemy's bow-wood in their main-shrouds, need only to get a little to windward of her, and about one or two ship's lengths a-head, according to the estimated celerity of their movements; then brace sharp a-back the head-falls, shiver the after-ones, or lay them flat to the wind, with the helm a-lee. This manœuvre, well performed, and covered by a brisk fire, will commonly succeed; but care must be taken not to come round to soon, but to range very close to the adversary; because if the boarding vessel be not sufficiently a-head of him, it might fail in boarding by paying too short round, and its bow-wood get foul of his fore-shrouds, which would be very disadvantageous. The design will be frustrated, if the boarding-ship closing too far a-head, passes under the bow-wood of the enemy, who will thus, however, be exposed to be raked at his head, if he does not manœuvre in the same manner and at equal quickness as the boarding vessel, which has the great advantage of priority. In order to engage the bow-wood of the enemy's ship in the rigging of the boarding vessel, this should be ranged very close to the other; because, if this were attempted at only a ship's length large, and to windward of the enemy, he need merely, upon perceiving the design, to put the helm hard a-lee, and heave in flays. If this last method be properly executed, the two ships can only range very near each other, and exchange their broad-sides, and the lee-ship will immediately gain the wind of her adversary. Consequent to execute this maneuvre well, the vessels must be nearly yard-arm and yard-arm.

If the boarder be at a certain distance a-lee on the weather-quarter, the ship wishing to avoid boarding must have in flays, as soon as the other vessel is in the act of veering, in order to close with her to leeward. By this manœuvre they will come head to head, so that they may reciprocally fire their broad-sides, in passing on opposite directions, and the lee-ship will get to windward.

In the third case, when two ships engage with the wind large, the boarding vessel should keep as close as possible on the lee-quarter of the ship she means to attack by boarding, that she may execute her purpose by coming rapidly to the wind, and being careful not to pass a-head of her opponent. The weather-ship, in order to avoid being boarded, must act according to circumstances, in the manner directed in the last case. A ship may be boarded on the weather-side, by conforming to the instructions relating to boarding to windward. When two vessels are engaged with the wind right a-lee, the boarder ought to drop a-lee of the enemy, in order to run up close along-side of him, if the boarder has the advantage of falling; for, as she advances towards her adversary, the adversary can only endure to range rapidly to the wind on the other tack, as soon as the bow-wood of the boarder is a-breast of her stern, and thus gain the wind, in order to be in a situation to extricate herself more easily by a good manœuvre. The boarding vessel should be allowed to come a-breast of the stern of her adversary, before she can lases her wind; because, if this were done sooner, the ship a-lee, at a small distance, would board her perfectly well, even if she failed with equal celerity, since the boarder would be to windward, would run large longer than the other, would range more flowly to the wind, and continue to shoo a-head of the flying ship. This will appear more evident by considering that the boarder coming from windward preserves his velocity longer, trimming his only as the ship comes to the wind, and cuts the course of his adversary with a line less curved than that described by theretreating ship. If, by coming too near or too far to the wind, the boarder chuse to abandon his design, he might do so by veering a few points on the other tack, and shortening sail; so that the retreating ship will shoo her stern, and the boarder can then take her by passing under her stern.

In attacking a ship closely to leeward, the boarder should keep away a little when abreast of her, and seem to yield under her fire. If the enemy's ship should thus be induced to veer, in order to bring the boarder more under her guns, the latter should heave r-pidly to the wind, by putting the helm a-lee, trimming all sharp a-lee, and suppressing the effect of the head-falls; which should be done at the instant when the enemy is perceived to be bearing down. The two ships will by the quickness of this manœuvre, and the priority of the movement thus gained on the enemy, soon close, and, with proper attention, the enemy's bow-wood may be entangled in the fore or main rigging of the boarding vessel, which would be a favourable circumstance in the attempt to board. However it may happen that no attempt can be made to board, if the weather-ship, instead of bearing away, places more and more to windward; fore this faint manœuvre may take the boarder too far off to leeward of the adversary. If the boarder should chance to be a ship's length to leeward, and about the same distance a-head of the enemy's vessel, it may, under cover of a heavy fire, heave in flays; and thus come right athwart the enemy's hawse, rake him fore and aft, and board him, his bow-wood being right
right over the enemy's gang-way; nor can he possibly avoid a broadside; nor if he leave all a-back and make a stern board, which is his only resource, he may avoid being boarded, but his situation will be very perilous.

In the last cage of boarding a ship, which is at anchor, riding head to wind, it must be executed under sail; for if the boarder cannot approach the enemy except by towing a-head, he will never be able to board the latter against his will; because he will be always able to annoy the boats which are hailing on the tow-lines. It should not therefore be attempted, unless the boarder be under way. In order to perform it with success, the boarder must be sufficiently to windward to approach the enemy by a little falling off, without exposing his men to the fire of the latter, which in this situation might be played on with great advantage. If the boarder, then, should be thus to windward, so as to be able to approach the enemy at anchor, he ought to flop his head-way, by taking a-back his mizen topmast and fore-lay fall; and when about a ship's length from the vessel proposed to be boarded, let go an anchor, and then work, so that, as soon as the mizen topmast is taken a-back, the mizen close sail, the top-falls closed up, and the fore-topmast lay fall hauled down, he may come head to wind, and over away cable, till, by falling off, he comes board and board with his opponent, who is full riding at his moment, and who at this instant ought to be also raised by the boarder. This is the only method of maneuvering to which the boarding ship can recur; because, as soon as the anchor is gone, the ship acquires stern-way, and when the cable is checked, the rumps head to wind, in which she is much assisted by the mizen and mizen top-sail, which impel her stern to leeward, till the wind is right, in the direction of the keel; and, as the cable is veered away, till exactly along-side the ship at anchor, her own anchor being right a-head of the vessel the means to board, it follows that, as soon as the boarding ship comes head to wind, she is in a proper situation to throw her grapnels, and send her crew on board of the other, if they are the strongest.

The ship at anchor should never wait for the enemy in that situation, which is always disadvantageous, and as there is much greater probability of escape when under way. But if it be necessary for the enemy to continue at anchor, he should take advantage of the boarder's ship letting go her anchor, to cut the cable by which she rides; and by this maneuver fall astirvate, rake the boarder, avoid being boarded, and bring up with the lee anchor. If time allow, two springs should be cast out, one on each side of the cable by which the ship rides, if there have been no previous opportunity for laying out two anchors, and thus guard against surprize, in case the ship which attacks has it in her power to pass on either side of the other; and when the side for which she is determined is perceived, the said anchor should be hoisted on the spring which is on the same side she has let go on anchor, if the be a-head, and on the opposite, if she be a-fore, or veering out at the same time the other spring and cable, till the said anchor be brought right abreast. Then he may be raked at pleasure, as he has no way of escape. His only course to prevent danger would be having also a spring; and under cover of a brisk fire, veering upon that spring and cable to lay his enemy handomely on board. But if this precaution should have been neglected, he must cut his cable, and drop on board of the ship to leeward; who on the other hand, has no mode of avoiding being boarded, but by cutting, to get under way, or to run on shore.

It is always easy to board a ship at anchor, when the wind will allow approaching to her under sail; in which case it is most advisable to run her along side, or to bring-to to windward of the ship intended to be attacked, keeping her exactly to leeward; then to drift on board of her, by trimming the sails in such a manner as to keep as nearly as possible the broadside of the attacking vessel opposite to that of the adverse ship. In this situation the boarder should annoy the enemy with his guns till he can close with him; and by constantly cannonading, his fire may not be so well served as it otherwise might be. If, while a vessel is underway, it be proposed to board a vessel that is moored, an anchor should be let go at the time of boarding; for if the attacked ship should at this moment cut her cables to drive on shore, this would prevent the assailant and the affaid running a-ground together. Elements and Practice of Rigging and Seamanship, vol. ii. Boarder's Manoeuvrer, or Skilful Seaman, &c. translated from the French by Saucul, 4to. 1783.

**Boarding-netting.** See **Netting**.

**BOAKI,** in Geography, a village of Africa, on the Gold Coast, situated between Sakundu and Sama, where the Dutch had formerly a small factory, which was afterwards removed to Sama.

**BOAKI Lappa** a name given by the ancient Romans to the fruit or rough balls of the common apan or cleavers. Pliny calls this plant sometimes *lappa,* sometimes *lapage,* and the fruit by the names of *lappe binaire,* or *lappe canne,* and sometimes *canne.*

**BOARINA, Boarola,** in Ornithology, the name of a small bird, described by Aldrovandus and others. This is the fig-eater of Albin and Latham; and Motacilla *Novis* of Gmelin.

**BOARULA, a species of Motacilla,** called in England the grey wagtail. The colour of this bird is cincere above, beneath yellow; tail feathers dark, and pale at the edges. This is an European bird, about seven inches and a half in length, and, like the rest of the wagtail tribe, frequents watery places. They are lively, active birds, percutually flit the tail, and seldom perch, but rest upon the ground. They feed chiefly upon insects. The neck of this species is made on the ground, and is composed of dried fibres and moss, lined with wool or feather, and usually contains from six to eight eggs, which are of a dirty white marked with yellow spots. They breed in the north of England, seldom approaching nearer to the southward than Cumberland, till after the month of October. Lin. Dom. Brit. Birds, pl. 40, &c. *Le Bergeete,* of Belon; and *la Bergerette, jaune,* of Drillon, is of this species.

Obs. A variety of *Motacilla Boaria* inhabits Java. The colour is an olive brown, beneath yellow; lower part of the neck grey; first tail-feather entirely white; under-side and tip of the second and third white.

**BOA's,** in Entomology, a species of Scarabeus, that inhabits Sierra Leone. The thorax is reticulate, excavated, bilaterate; horn of the head recurved and simple. Fabricius.

**BOAT,** a small vessel, generally without a deck, managed by sail or oars, or drawn by horses upon canals, rivers, or lakes, for the pur. of of conveying passengers, goods &c. from one place to another. The form, equipment, and names of boats are different according to the purpose for which they are intended, or to the country where they are built. Hence, boats are made flight or strong, sharp or flat-bottomed open or decked, plain or ornamented, as they may be designed for swiftness or burden, for deep or shallow water, for falling in a harbour or at sea, and for convenience or pleasure.

As boats make always a necessary appendage to ships it
BOAT.

will, therefore, be proper to give a brief account of those belonging to the different classes of shipping.

Ships of war, particularly of the line, have usually six boats, and the number decreases with the rate of the ship. The largest is called the long-boat, and sometimes the launch; and its principal employment is to convey heavy stores to the ship. This boat is generally furnished with a mast and sails, and is occasionally decked, armed, and equipped, for cruising short distances against merchant ships of the enemy, or smugglers, or for impressing seamen, &c. The large is the next long-boat, and is particularly appropriated to carry the principal chief officers, as the admiral, captain, &c. to or from the ship; and in consequence of its slender construction, combined with its small breadth, is very unfit for sea. This boat never rows less than ten oars. The pinnace is similar to the barge, but smaller, never rows above eight oars, and is used by lieutenants in going ahoire, or coming off to the ship. Cutters are broader, deeper, and shorter than the former; they are employed on almost all occasions, as for going ahoire, carrying stores, provisous, boarding ships at sea, &c.

Jolly-boat is the smallest boat used in any of the ships in his majesty's service. In Plate VI of Ships are perspective views of a man of war's long-boat, of a barge, and flat-bottomed boat.

In an East Indian there are four boats, the long boat, cutter, jolly-boat, and yawl. The first of these is for conveying stores and goods to and from the ship; the second for going ahoire; and the others are employed occasionally.

Ships in the West India trade use boats in number and size according to the islands at which they intend to take in their cargo. Four boats generally belong to a ship in the Jamaica trade. The largest, called a galalo, will carry from eighteen to twenty hogheads of sugar. The next less in size is usually called a ten hoghead boat, from the number of hogheads it carries; these two are left in the country. The next less boat called a double master, or pinnace, carries two hogheads a short distance; and the smallest boat is called the jolly-boat, and is generally suspended from the taffrail.

Ships in the Windward Island trade, loading at Barbadoes, Martinico, Dominica, &c., generally use a flat launch with oars, each about thirty-six feet long, one end being upon the boat's stem, and the other upon the beach, upon which the sugar hogheads are rolled from the beach into the launch. At St. Vincent, Grenada, and Tobago, a one hoghead moses is used. At Trinidad a launch as flat as can be built is used. At Demerara, Berbice, and Surinam, they generally use sailing craft that will carry from twelve to twenty hogheads.

Ships employed in the whale fishery have six or more boats. These are very narrow in respect to their length, for the purpose of pulling fast; they are strong built, and sharp at both ends. Smaller vessels of one hundred tons and under, have in general one boat.

Bacbot, a fishing boat on the rivers in France; it is provided with a mast, oars, fishing lines, a flast, a pole to fall the boat on the river when they are fishing, &c.

Balosa or balosa, a boat, or rather raft, composed of five, seven, or nine logs or trunks of trees, used in South America. This boat is so called from balza or balba, the name of the wood of which it is constructed, but which is called puerro by the Darien Indians. The balza is a whitish fpuny wood, and so very light that a boy can easily carry a log four yards long and a foot in diameter. The following account of this boat is extracted from the Relacion Historica del Viage a la America Meridional, necho de Orden, de 8. Magg, &c. Imprefa de Orden de Rey en Madrid, 1748.

The balzas are not only adapted to this river (Guayaquil), but venture to sea, and carry on the trade as far as Payta. Their dimensions are proportionate to their use, or the voyage for which they are intended; some being only for fishing, others for the river trade, bringing fruits, and all sorts of merchandise from Bodega to Guayaquil, and from thence exporting them to the Pusa, Salta de Tumbes, and Payta; others are yet more commodiously contrived for carrying families, with all their furniture and necessaries, to their plantations or country houses. The puerro trees, of which they are built, are twelve or thirteen toises long, reckoning five feet to the toise, and two feet, or two a half diameter, so that the whole breadth of nine logs, of which some of them consist, is between twenty and twenty-four feet; and those of seven or fewer logs are proportionate.

These logs are fastened to each other only by the beuces or withies, with which the crofs logs are also lathed to them, yet so securely as never to give way, if not worn out by long use, though in their voyage to the coast of Tumbes and Payta the sea runs very high; but the negroes neglecting to examine if the beuces are not too much worn to sustain another voyage, before they put to sea, it too often happens that the lashing breaks, the logs separate, and both cargo and passengers perish: indeed the Indians, being more active, get upon a log and safely work it to the nearest harbour.

One of these melancholy infurances happened while we were in the jurisdiction of Quito, and are wholly to be imputed to the foard negligenoe of the Indians, who seem to have no sensibility of danger.

The thicked log of the balza is placed so as to reach farther than the others; at the stern, another log is lathed to this, on each side, and others to these, till the intended number be completed, which is always odd; the large one in the middle being, as it were, the flay and foundation of the others. The larger fort of these vejels usually carry about twenty-five tons, without damaging the cargo in consequence of its being too near the water's edge, for the sea never breaks over them, nor does the water swell between the logs, or ever ride above them, because the whole body of the vehicle accommodates itself to the motion of the water in all weathers.

These rafts work and ply to windward like a keeled vejel, and keep their course before the wind almost as exactly, which is the effect of another contrivance besides the rudder; some large planks, three or four yards long, and half a yard broad called guares, are set up vertically at the stern, and also forward between the main logs. By pushing some of these under the water, and taking others a little up, the float fails large, bears up, tacks, or lies to, according as the machine is worked; an invention which has hitherto escaped the atuences of the most ingenious Europeans; and though the Indians have indeed contrived the instrument, they are yet utter strangers to the principles of machinery, and the caufes of its operations.

Had it been known before in Europe, the lofs of many lives in shipwreck might have been prevented, as appears by the following, among many other infurances: in the year 1750, the Genouela ship of war, being loft in the Vivora, the mariners made a jangada, or raft, to save their lives, but mifcarried by committing themselves to the winds and currents, without any freorage; and the frequency of such melancholy events induces me to give a minute explanation of this infurance, from a memoir of Don Jorge Juan, relating to it.

The direction in which a ship moves, when under sail, is in a line perpendicular to the sail, according to the demonstration of Renou, in his Theory of Manual Arts, cap. ii. art. 1; Bernouilli, cap. i. art. 4; and Plutot, sect. ii. art. 13. The reACTION
BOAT.

Holland, Boats of. In almost all the Seven United Provinces there are boats which serve for public carriages, which set out from every city at all hours of the day, and carry passengers very conveniently from one place to another, at a very small expense. They are long, narrow, and covered, and contain about sixty persons; each boat is drawn by one horse, and has only two men to manage it, the one attends the helm, and the other takes care of the rope; the horse is generally rode by a boy. In these boats there is a room which can easily contain six persons; this room, which is called a roof, has glass windows, whereas the other openings in the boat are shut with oil cloth in bad weather. A passenger may take a place in this room, or the whole room. These boats which carry goods from Amsterdam to the Hague, and which leave Amsterdam at eight at night, arrive at the Hague next morning. In those boats, however, designed for passengers only, a person is obliged to change boat several times. From Amsterdam to Haarlem, he must change boats half way, because the canal there is cut by a dyke. At Haarlem, the passengers must cross the town and get into the boat that is to carry them to Leyden. At Leyden the man again crosses the town to meet the boat in which he is to go to the Hague. All this can be performed in ten hours and a half; for, at eight o'clock precisely, a boat sets out from Amsterdam to Haarlem, where it arrives about half an hour after ten; at eleven a boat sets out from Haarlem for Leyden, and arrives there at three in the morning; half an hour after three a boat sets out from Leyden, and arrives at the Hague half an hour after six. There is such a good order kept, that at the ringing of a bell the boat must set out immediately, without waiting for any passenger. There are few countries where people can travel so conveniently as in Holland.

Ipoobah, a boat or canoe of the Society Islands, of which captain Cook gives the following description. The iroobah is used for short excursions at sea. These boats are all of the same figure, but of different sizes, and used for different purporses; their length is from ten to seventy-two feet, but the breadth is by no means in proportion; for those of ten feet are about a foot wide, and those of more than seventy are scarcely two feet. They have the fighting iroobah, the fishing iroobah, and the travelling iroobah, for some of those go from one island to another. The fighting iroobah is by far the longest; and the head and stern are considerably raised above the body, in a semicircular form, particularly the stern, which is sometimes seventeen or eighteen feet high, though the boat itself is scarcely three feet. These never go to sea singly, but are fastened together side by side at the distance of about three feet, by strong poles of wood, which are laid across them, and lashed to the gunwales. Upon the head of the fore part, a flap or platform is raised for ten or twelve feet high, and somewhat wider than the boats, which is supported by pillars about six feet long; upon this flap stand the fighting men, whose muzzle weapons are flings and spears; for, among other singularities in the manners of these people, their bows and arrows are used only for diversam as we throw stones; below these flaps lie the rowers, who receive from them those that are wounded, and furnish fresh men to assist in their room. Some of these have a platform of bamboo, or other light wood, through their whole length, and considerably broader, by means of which they can carry a great number of men. The fishing iroobahs vary in length from about forty feet to the smallest size, which is about ten feet; all that are of the length of twenty-five feet and upwards, of whatever fort, occasionally carry sail. The travelling iroobah is always double, and furnished with a small neat house, about five or six
fix feet broad, and fix or seven feet long, which is fastened upon the fore part, for the convenience of the principal people, who sit in them by day, and sleep in them at night. The fishing vessels are sometimes joined together, and have a house on board, but this is not common. Those which are shorter than twenty-five feet, seldom or never carry sail; and though the stern rises about four or five feet, they have a flat head and a board that projects forward about four feet. The ivahabas are the only boats used by the inhabitants of Otaheite.

"Life-boat," a boat invented by Mr. Henry Greathed of South Shields, for the purpose of recovering the lives of shipwrecked persons. The following circumstance gave rise to this invention:

In September 1789, the ship "Adventure of Newcastle," stranded on the Herd sands, on the south side of Tyreemouth haven, in the midst of tremendous breakers; and all the crew dropped from the rigging one by one, in the presence of thousands of spectators, not one of whom could be prevailed upon, by any reward, to venture out to her assistance, in any boat or coble of the common construction.

On this occasion, the gentlemen of South Shields called a meeting of the Inhabitants, at which a committee was appointed, and premiums were offered for plans of a boat which should be the best calculated to brave the dangers of the sea, particularly of broken water.

Many proposals were offered; but the preference was unanimously given to that of Mr. Greathed, who was immediately directed to build a boat at the expense of the committee.

This boat went off on the 30th of January 1790; and so well has it answered, and indeed exceeded, every expectation that the boat is now a tremendous broken sea, that since that time, not fewer than two hundred lives have been saved at the entrance of the Tyne alone, which otherwise must have been lost; and in no instance has it ever failed.

The principle of this boat appears to have been suggested to Mr. Greathed by the following simple fact—Take a sphaeroid, and divide it into quarters; each quarter is elliptical, and nearly refembles the half of a wooden bowl, having a curve curve projecting ends; this, thrown into the sea or broken water, cannot be upset, or lie with the bottom upwards.

The length of the boat is thirty feet; the breadth, ten feet; the depth, from the top of the gunwale to the lower part of the keel in midships, three feet three inches; from the gunwale to the platform (within), two feet four inches; from the top of the stems (both ends being similar) to the horizontal line of the bottom of the keel, five feet six inches. The keel is a plank of three inches thick, of a proportionate breadth in midships, narrowing gradually towards the ends, to the breadth of the stems at the bottom, and forming a great convexity downwards. The stems are segments of a circle, with considerable relief. The bottom is a curve curve and flat, with the sweep of the keel. The floor timber has a small rise curving from the keel to the floor-heads. A bilge plank is wrought in on each side next the floor-heads, with a double rabbit or groove, of a similar thickness with the keel; and, on the outside of this, are fixed two bilge-trees, corresponding nearly with the level of the keel. The ends of the bottom have form that fine kind of entrance observable in the lower part of the bow of the fishing boat, called a "cable," much used in the north. From this part to the top of the stem it is more elliptical, forming a considerable projection. The sides, from the floor-heads to the top of the gunwale, slant off on each side, in proportion to above half the breadth of the floor. The breadth is continued far forwards towards the ends, leaving a sufficient length of straight side at the top. The flter is regular along the main side, and more elevated towards the ends. The gunwale fixed to the outside twelve inches thick. The sides, from the underpart of the gunwale, along the whole length of the regular flter, extending twenty-one feet six inches, are caled with layers of cork, to the depth of sixteen inches downwards; and the thickness of this casing of cork being four inches, it projects at the top a little without the gunwale. The cork, on the outside, is secured with thin plates or slips of copper, and the boat is fastened with copper nails. The thwarts, or seats, are five in number, doubled; consequently the boat may be rowed with ten ears. The thwarts are firmly flattened. The side oars are short, with iron tholes and rope grommets, so that the rowers can pull either way. The boat is steadied with an oar at each end; and the steering oar is one third longer than the rowing oar. The platform placed at the bottom, within the boat, is horizontal, the length of the midships, and elevated at the ends, for the convenience of the steerer, to give him a greater power with the oar. The internal part of the boat next the sides, from the underpart of the thwarts down to the platform, is caled with cork; the whole quantity of which, affixed to the life-boat, is nearly seven hundred weight. The cork indubitably contributes much to the buoyancy of the boat, is a good defence in going along-side a vessel, and is of principal use in keeping the boat in an erect position in the sea, or rather for giving her a very lively and quick disposition to recover from any sudden "cant or lurch," which she may receive from the stroke of a heavy wave. But, exclusively of the cork, the admirable construction of this boat gives it a decided pre-eminance. The ends being similar, the boat can be rowed either way; and this peculiarity of form alleviates her in rolling over the waves. The curvature of the keel and bottom facilitates her movement in turning, and contributes to the ease of the steerage, as a single stroke of the steering oar has an immediate effect, the boat moving as it were upon a centre. The fine entrance below is of use in dividing the waves, when rowing against them; and, combined with the convexity of the bottom, and the elliptical form of the stem, admits her to ride with wonderful buoyancy in a high sea, and to launch forward with rapidity, without shipping any water, when a common boat would be in danger of being filled. The slanting or spreading form of the boat, from her floor-heads to the gunwale, gives her a considerabe bearing; and the continuation of the breadth, well forward, is a great support to her in the sea; and it has been found by experience, that boats of this construction are the best sea boats for rowing against turbulent waves. The internal hollows of the boat from the gunwale down to the platform, the convexity of the form, and the bulk of cork within, leave a very diminished space for the water to occupy; so that the life boat, when filled with water, contains only a considerable less quantity than the common boat, and is in no danger either of sinking or overturning. It may be presumed by some, that in cases of high wind, agitated sea, and broken waves, a boat of such a bulk could not prevail against them by the force of oars; but the life-boat from her peculiar form, may be rowed ahead, when the attempt in other boats would fail. Boats of the common form, adapted for speed, are of course put in motion with a small power; but for want of buoyancy and bearing, are over-run by the waves, and sink, when impelled against them, and boats constructed for burthen meet with too much resistance from the wind and sea, when opposed
to them, and cannot in such cases be rowed from the shore to a ship in distress.

Mr. Greathead gives the following instructions for the management of the life-boat.

The boats, in general, of this description are painted white on the outside; this colour more immediately engaging the eye of the spectator when rising from the hollow of the sea than any other. The bottom of the boat is at first varnished (which will take paint afterwards) for the more minute inspection of purchasers. The oars she is equipped with are made of fir, of the best quality; having found by experience, that a rope ash oar, that will dress clean and light, is too slight among the breakers; and when made strong and heavy, from rowing double-banked, the paddle being short, sooner exhausts the rower, which makes the fir oar, when made fliff, more preferable.

In the management of the boat she requires twelve men to work her; that is, five men on each side rowing double-banked, with an oar flung over an iron thole, with a grometer (as provided), so as to enable the rower to pull either way, and one man at each end to steer her, and to be ready at the opposite end to take the flise-oar, when wanted. Also, from the construction of the boat, she is always in a position to be rowed either way, without turning the boat; when manned, the person who steers her should be well acquainted with the course of the tide, in order to take every possible advantage: the best method, if the direction will admit of it, is to head the sea. The rower should keep his eye fixed upon the wave or breaker, and encourage the rowers to give way, as the boat rifes to it; being then aided by the force of the oars, she launches over it with vast rapidity, without shipping any water. It is necessary to observe that there is often a strong flux of sea occasioned by the frayed wrecks, which requires both dispatch and care in the people employed, that the boat be not damaged. When the wreck is reached, if the wind blows to the land, the boat will come in shore without any other effort than flieving.

The following additional observations and instructions are given by Mr. Hinderswell of Scarborough.

The life-boat at Scarborough is under the direction of a committee. Twenty-four fishermen, composing two crews, are alternately employed to navigate her. A reward, in cases of shipwreck, is paid by the committee to each man actually engaged in the affistance; and it is expected the vessel receiving assistance should contribute to defray this expense. None have hitherto refused.

It is of importance that the command of the boat should be entrusted to some ready experienced person, who is acquainted with the direction of the tides or currents, as much skill may be required in rising them to the most advantage, in going to a ship in distress. It should also be recommended, to keep the head of the boat to the sea, as much as circumstances will admit; and to give her an accelerated velocity to meet the wave, much exertion is necessary in approaching a wreck, on account of the strong reflux of the waves, which is sometimes attended with great danger. In a general way, it is safest to go on the lee quarter; but this depends on the position of the vessel; and the master of the boat should exercise his skill in placing her in the most convenient situation. The boatmen should perform themselves in the use of the boat, that they may be the better acquainted with her movements; and they should at all times be strictly obedient to the directions of the person who is appointed to the command.

Plate 12 of Boats contains a perspective view of the life-boat riding a heavy surge, and going out to the assistance of a ship, which appears in the horizon in distress. In the life-boat are ten rowers pulling to get to the ship. At the lower end of the boat, a man is rowing her with a long oar towards the ship; and another person is stationed with an oar at the higher end, to fleer the boat on her return; both ends of the boat being formed alike, in order to use either at pleasure in going to or coming from the ship. The fleer, or curve of the boat, rising considerably from the middle to the feet, or ends, is clearly distinguished; also the coating of cork secured by slips of copper along the outside of the boat, near the part where the rowers are seated.

As every thing relating to this important invention must be interesting to the public, it is, therefore, premised the following additional information will not be unacceptable, especially as it contains the strongest evidence of the great utility of this boat.

The life-boat having been submitted to a trial of twelve years' experience, during which period Mr. Greathead sacrificed a very considerable portion of his time in furnishing plans, and otherwise rendering the invention as extensively useful as he could; on the 25th of February 1802, he presented a petition to the house of commons, the prayer of which was as follows:

"Your petitioner having been instrumental in saving the lives of so many persons; the utility of the boat being now established; and your petitioner having derived little or no pecuniary advantage whatever from the invention, his models having been made public; humbly hopes that this honourable house will take his cause into their consideration, and grant your petitioner such reward as to this honourable house shall seem meet, &c."

The petition, having been recommended by his majesty, was referred to the consideration of a committee; from whose report the following is a brief abstract:

"It appeared to your committee to be necessary to direct their inquiries particularly to the three following subjects.

1st. The utility of the life-boat.

2nd. The originality of the invention claimed by Mr. Greathead.

3rd. Whether he had received any and what remuneration.

And in order to ascertain these facts, your committee proceeded to examine,

Ralph Hillery, a seaman, who stated, that he had been forty-five years at sea, in the Greenland and coal trade, and has refixed always at Shields. About three years ago, he was in the Northumberland life boat, which was presented to North Shields by the Duke of Northumberland, the first time he went off, which was to the relief of the ship Edinburgh. This vessel was seen to go upon the Herd sands, about a mile and a half from those; she was brought to an anchor before the life-boat got to her, and the continued striking the ground so heavily, that she would not have held together ten minutes longer, had they not got to her; they made her cut her cable, and then took seven men out of her, and brought them on shore. The sea at that time was monstrously high, so high that no other boat whatever could have lived in it.

"He was then asked, whether he had been out in the life-boat on any other occasion? to which he replied, that he had been five times out in her to the relief of different ships; from one ship they saved fifteen men; and in every instance when he, the witness, was in the boat, they saved the whole of the crews of the wrecked ships. Besides the times he has been himself in the boat, he has seen her go off scores of times, and never saw her fail in bringing off such of the crews as layed by the ship. But many times part of the crews of the vessel wrecked have taken to their own boats,
and have been drowned by the boat's upsetting; whilst the remainder of the crew that continued on board have been saved by the life-boat. And the witnesses declared his conviction, that no other boat that ever he saw could have been upset. When this boat was adrift and full of water, the men all went to one side of the boat, in order to try the possibility of upsetting her, which they could not effect.

"Mr. Thomas Henderwell, of Scarborough, ship-owner, stated, that the peculiar nature of the curvature of the keel of this boat is the foundation and basis of its excellence. It regulates, in a great measure, the lower water, with elevation towards the ends. This construction spreads and repels the water in every direction, and enables her to ascend and descend with great facility over the breakers. The ends being reduced regularly from the centre to less than one-third proportion of the midships, both ends are lighter than the body of the boat. By means of the curved keel, and the central gravity being placed in the centre of the boat, the fore-and-aft equilibrium in the middle of the breakers. The internal shallowness of the boat in the body of the boat, occasioned by the convexity of the keel and the sheer at the top, leaves a small space for the water to occupy, that the boat, though filled with water, is in no danger of sinking or upsetting. The buoyancy of the boat, when filled with water, is also assisted by the cork being placed above the water-line.

"Mr. Samuel Plumb, of Lower Shadwell, described himself to have been bred to the sea, and to have acted in the capacity of master of a ship from 1777 until within these eighteen months; that he had been chiefly employed in the coal and Baltic trades, and had refitied at Shields the whole of his life till within the last five years. He is acquainted with the Shields' life-boats; and from every information he has received, Mr. Gresheam has been universally considered as the inventor of them.

"He went out in one of them to the relief of a ship, which was wrecked on the coast near the mouth of the Tyne. The first time they reached the wreck, the rope, which they threw from the wreck to the life-boat, broke, and the boat was drifted to the northward by the violence of the wind and strong current of the tide; they then landed, and by two horses dragged the boat along the sand to the southward, and then launched her again through the breakers to the vessel. In the second attempt they succeeded in bringing the crew on shore. The witnesses never saw any other boat in which he would have ventured to the relief of the crew, or which he thinks could have executed the purpose of saving them.

"Mr. William Mangerman of South Shields, ship-owner, was one of the original committee that ordered the life-boat at South Shields in 1789. He corroborated the evidence given by captain William Carter; and stated, that from the situation of his residence, he has seen the performance of the life-boat more frequently than probably any other of the committee at South Shields, and has frequently seen and afflicted in the launching of the life-boat from the beach into the sea during a storm. That this is done with the assistance of low wheels, or what may be called rollers, upon which she is dragged to the water's edge, and by means of hands proportioned to the weight of the boat, she can be launched with as much ease as any other boat. He remembers the influence stated by Mr. Samuel Plumb, in which the life-boat, being drifted to the northward by a strong tide, was landed, and again launched to the southward opposite to the wreck, in the face of a very heavy sea. When the gate-way, Planter, and other ships were wrecked, it was first discovered that the life-boat could act with perfect safety adroitly, and since that time, the boat has been rowed adroitly, or otherwise, indifferently,
as the object to be relieved required it; and that she goes with the same safety from one object to another, in a broken sea, as an ordinary boat would pass from one ship to another in a smooth sea. He is confident, since the establishment of the life-boat, that there have been at least 300 persons brought on shore from ships in distress, and wrecks off Shields, the greatest part of whom must otherwise have perished. And the witnesses added, that it was his opinion, founded upon experience and the observations he had been enabled to make, that no sea, however high, could overflow or sink the life-boat.

The originality of Mr. Greathead's invention is there proved by proper certificates and attestations; and the remuneration that he had received over and above a profit of from ten to fifteen pounds each, upon building a few boats, is flated to be,

From the Literary and Philosophical Society of Newcastle, five guineas,
Royal Humane Society, a medallion.
Corporation of the Trinity House, 100 guineas.
Society of Arts, a gold medallion and 50 guineas.

The vote of parliament, on the 3d of June, in consequence of the foregoing report, was, "That a sum not exceeding 1200 pounds be granted to his majesty, to be paid to Henry Greathead, of South Shields, in the county of Durham, boat builder, as a reward for his invention of the life-boat, whereby many lives have already been saved, and great security is afforded to seamen and property in cases of shipwreck."

The subscribes at Lloyd's, on the 20th of May, voted to Mr. Greathead the sum of 100 guineas, "as an acknowledge-ment of his talents and exertions in inventing and building a life-boat," and 2000 pounds "for the purpose of encouraging the building of life-boats on different parts of the coasts of these kingdoms."

At the beginning of 1804, Mr. Greathead received a very valuable diamond ring from the emperor of Russia, whose munificence to ingenious men of all countries is well known.

The following extract from the Tyne Mercury of the 29th November 1803, is another proof of the great utility of the life-boat.

The Bee of Shields, John Houlton master, having put to sea (21st Nov.) in an easterly wind, had not proceeded far, when it began to blow strongly from the south-west, which obliged him a few hours after to put back. In taking Tynemouth bar at the last quarter ebb, in a very heavy sea, she struck the ground, and unshipped her rudder. Being now completely unmanageable, she drifted towards the north side of the bar, and at length drove on the Black Middens. They who have witnessed the tremendous sea which breaks on the north-east part of this harbour, in a south-easterly wind, may form a conception of the dreadful situation in which the crew of the vessel were situated. In the midst of rocks, where the sea runs mountains high, so as frequently to obscure the ship, and where any vessel might be expected immediately to go to pieces; their only refuge from being swept into the gulf, was to climb up into the shrouds, which the captain, with six men and boys, being the whole crew, infantly effected. The dangerous situation in which they were placed, immediately attracted an immense number of spectators from both North and South Shields. The flutes in every direction were lined with people who expressed, by their anxious looks, the most sympathetic apprehensions for their safety. The making use of the life-boat was by most people thought impossible; and at all events, the attempt was attended with extreme dan-ger, owing to the tremendous sea, and the immense rocks which lay where the vessel was stranded. So confident, however, was Mr. Greathead, the inventor, of the life-boat being able to live in any sea, if properly navigated, that he, without hesitation, and with the greatest alacrity, volunteered his services to bring off the men from the brig. This intrepid offer operated like electricity among the sailors; and immediately the Northumberland life-boat was launched, and manned with Mr. Greathead and South Shields pilots. In the course of a few minutes they reached the vessel, without much difficulty, and picked off the men from the shores floating with cold, and almost perished by fatigue. One man, in making too much haste to enter the boat, fell into the breakers, but was immediately recovered. When the whole crew was in the boat, they rowed towards the shore, and in less than an hour from the time the boat was launched, did they return in safety; to South Shields, without a single accident!

Upon the 8th of August 1777, some trials were made on a boat, or sloop fit for inland navigation, coasting voyages, and short palaiges by sea, which is not, like ordinary vessels, liable to be overflow or sunk by winds, waves, water-foots, or too heavy a load, contrived and constructed by M. Bernardes, director of the bridges and canals in France, &c.; at the gate of the invalids in Paris, in the presence of the provost of the merchants, of the body of the town, and of a numerous concourse of spectators of all conditions.

Thee experiments were made in the way of comparison with another common boat of the same place, and of equal size. Both boats had been built ten years, and their exterior forms appeared to be exactly similar. The common boat contained only eight men, who rocked it and made it incline so much to one side, that it presently filled with water, and sunk; so that the men were obliged to save themselves by swimming; a thing common in all vessels of the same kind, either from the imprudence of those who are in them, the strength of the waves or wind, a violent or unexpected shock, their being overloaded, or over-powered in any other way.

The same men who had just escaped the boat which sunk, got into the boat of M. Bernardes; rocked and filled it, as they had done the other, with water. But, instead of sinking to the bottom, though very full, it bore being rowed about the river, loaded as it was with men and water, without any danger to the people in it.

M. Bernardes carried the trial still farther. He ordered a mast to be erected in this same boat, when filled with water; and to the top of the mast had a rope fastened, and drawn till the end of the mast touched the surface of the river, so that the boat was entirely on one side, a position into which neither winds nor waves could bring her; yet, as soon as the men, who had hauled her into this situation, let go the rope the boat and mast recovered themselves perfectly in less than the quarter of a second; a convincing proof that the boat could neither be sunk nor overturned, and that it afforded the greatest possible security in every way. These experiments appeared to give the greater pleasure to the public, as the advantages of the discovery are not only so sensible, but of the first importance to mankind.

Marine boats, so called from being employed on the river Marine in France. They are flat, and curvy, with narrow body, &c, from the province of Champagne.

Norway boat, or waw, is sharp at both ends, and of various dimensions. This boat, from its construction, is admirably adapted for enduring a high sea, and will often ven-
ture out to a great distance from the land, when some ships can scarcely carry any sail.

Pahie, a boat of the Society islands; it is bow-sided, and sharp-bottomed. The pahie, according to captain Cook, is of different sizes, from thirty to sixty feet long, but like the iwalah, is very narrow. One that was measured was fifty-one feet long, and only one foot and an half wide at the top; in the widest part it was about three-feet, and this is the general proportion. It does not, however, widen by a gradual swell, but the sides being straight and parallel for a little way below the gunwale, it swells abruptly, and draws to a ridge in the bottom; so that a transverse section of it has somewhat the appearance of the mark upon cards, called a spade, the whole being much wider in proportion to its length. These, like the largest iwalahs, are used for fighting, but principally for long voyages. The fishing pahie, which is the largest, is fitted with the flage or platform, which is proportionably larger than those of the iwalah, as their form enables them to sustain a much greater weight. Those that are used for fishing are double, and those of the middle size are fized to be the half sea-boats. They are sometimes out a month together, going from island to island, and sometimes, as is credibly reported, they are not unfrequently a fortnight or twenty days at sea, and could keep it longer, if they had more storage for provisions, and conveniences to hold fresh water.

When any of these boats carry sail, they make use of a log of wood which is fized to the end of two poles that lie across the vessel, and project from six to ten feet, according to the size of the vessel, beyond its side; something like what is used by the flying proa of the Ladrone islands, and called, in the account of lord Anson's voyages, an Outrigger; to which the swamps are fastened.

Some of them have one mast, and others two; they are made of a single fick; and when the length of the canoe is 30 feet, that of the mast is somewhat less than 25 feet; it is fixed to the frame that is above the canoe, and receives a fall of matting about one-third longer than itself; the fall is pointed at the top, square at the bottom, and curved at the side, somewhat resembling what is called a shoulder of mutton fall, and used for boats belonging to men of war; it is placed in a frame of wood, which surrounds it on every side, and has no contrivance either for reefing or furling, so that if either should become necessary, it must be cut away, which, however, in these climates, can seldom happen. To the top of the mast are fastened ornaments of feathers, which are placed inclining obliquely forwards, the shape and position of which will be conceived at once from the figure in the plate of Boats.

The oars or paddles that are used with these boats, have a long handle and flate blade, not unlike a baker's peel. Of these, every person in the boat has one, except those that sit under the awning, and they push her forward with them at a good rate. These boats, however, admit so much water at the seams, that one peron at least is continually employed in throwing it out. The only thing in which they excel is landing and putting off from the shore in a surf; by their great length, and high sterns, they could land every day, when the English boats could scarcely land at all; they have also the same advantages in putting off by the height of the head.

The exact dimensions of a pahie, given from a careful admeasurement, will go very materially contribute to the elucidation of the description subseqently given, as to the manner and particular form in which this class of canoes is built, that they might perhaps enable a European draughtsman, to construct one so nearly resembling them as to create some difficulty in pointing out the true form from that which was fictitious:

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To illustrate the description of the manner in which these vessels are built, it will be necesaary to refer to fig. 2.

Plate II.
The first flage or keel under a a, is formed of a tree hollowed out like a trough, for which the longest trees are chosen that can be procured, so that there are never more than three in the whole length; the next flage under b b, is formed of straight planks, about four feet long, fifteen inches broad, and two inches thick; the third flage under c, is like the bottom, made of the trunks hollowed into its bilging form; the last is also cut out of trunks, so that the moulding is of one piece with the upright. To form these parts separately without saw, plane, chisel, or any other iron tool, may well be thought no easy task; but the great difficulty is to join them together.

When all the parts are prepared, the keel is laid upon the blocks; and the planks, being supported by fchalions, are fowed or clamped together with strong thongs of plaiting. These are plaited several times through holes that are bored with a gauge or auger of bone, which performs its office with tolerable exactness; and the nicety with which this is done, may be inferred from their being sufficiently water-tight for use without caulking. As the plaiting soon rots in the water, it is renewed at least, once a year, in order to which the vessel is taken entirely to pieces; the head and stern are rude, with respect to the decks, but very neatly finished, and polished to the highest degree.

These boats are kept with great care in a kind of house, built on purpose for their reception; the houses are formed of poles let upright in the ground, the tops of which are drawn towards each other, and fastened together with their strongest cord, so as to form a kind of Gothic arch, which is completely thatched quite to the ground, being open only at the ends; they are sometimes fifty or sixty paces long.

Peter-boat, a boat employed in the river Thames in fishing. They are in general flat well, and are good sea-boats.

Pound-boat, a vessel employed by gentlemen in excursions upon the water, for their amusement. Their size and manner of equipment are very various, being from a few tons burden, to upwards of two or three hundred tons, and having one or more masts.

Pott-boat, are boats established on the river Loire in France, for the convenience of the public. They are long in respect to their breadth, and go very fast. There are also some on the Rhone, which go from Lyons to Avignon in 24 hours.

Pote; see that article.

Punt, a sort of flat-bottomed boat, whose floor resembles the platform of a floating flage. It is used by the naval artificers,
BOAT.

Mandarin's sampans are greater or less red-painted boats, ornamented with dragons and such like figures, or with little flags.

The Stage-boats, called in French, bateaux coches, and more commonly coches-d'eau, water coches, are large covered vessels, which serve, particularly on the river Seine, for the convenience of travellers, and for carrying all sorts of merchandise. The names of them are the pagfage boat, or water coach of Sens, of Auxerre, of Montereau, and of Fontainebleau, or Valvins.

Till-boat, one with a cover, to defend the passengers from rain, &c.

Troll-boat, a boat employed in a canal in conveying passengers, &c., from one place to another. This mode of travelling, though not expeditions, is indeed very pleasant, and certainly much cheaper than by any land carriage. From Grangemouth to Port Dundas, a distance of nearly 30 miles, the fare is only one shilling, or eighteen pence.

Well-boat, a boat having a well in the bottom, to preserve full alive.

A Wherry is a light sharp boat, used in a river or harbour, for carrying passengers from place to place.

The boats, or wherries, allowed to ply on the Thames about London, are either bellows, wrought by a single person with two oars; or oars, wrought by two or more persons, with each an oar.

The following are some of the terms used in the management of a boat.

Bail the boat, is to throw out the water which remains in her bottom, or the well-room. See BAIL.

Find the boat, to save her from beating against the ship's fides.

Man the boat, an order to those appointed to manage her to go on board the boat immediately.

Moor the boat, the order to fasten a boat with two ropes, so that the one shall counteract the other.

Trim the boat, the order to fit in the boat in such a manner as that the shall float upright in the water, without leaning to either side.

Wind the boat, the order to bring her head the other way.

The boat's gang, includes those who are employed for rowing in the boat; such as the cockpitman and his gang, to whom the charge of the boat immediately belongs.

A small boat is that which will endure a rough sea well.

To preserve boats from foundering at sea when flap founder. To take a small, yard, boom, &c., that may be found floating from the ship; the longer the better; make fast to each end of the boom a rope about twice its length; and bend one end of another rope, about ten fathoms long, exactly in the middle of the span, and the other end is to be made fast to the foremost of the boat, so that she may drive flm on to the sea. When this misfortune happens far from land, and the storm ceases, in moderate weather the drift boom may be towed end on to the boat's stern, that they may either row or sail towards land.

Mr. Hutchinson, in his treatise on practical seamanship, gives an account of a boat being preferred by this method, as follows. The Bafi, in her passage from the West Indies, took up ten men in a small boat, twelve feet long, which was preferred from foundering after the vessel had foundered, by having a rope fast to a log of wood, as they called it, and tied to the boat's bow, which kept her to drive end on with the head to the wave, and broke their violence so much as to preserve her from filling with water, when one half of them was obliged to lie down in the bottom of the boat, to prevent her being top-heavy. By particular inquiry of the master
at the Boats, for example, and that those people belonged to a schooner bound from Bermuda to the West Indies; that it was after a hard gale of wind when they met with the boat, which had two oars for sails, and two blankets set upon them for sails, and was steering for Bermuda, when they were fortunately taken up, and that the log of wood, as it was called, they drove by, was their fore square sail yard, lapped with a rope to each yard-arm, and a rope about ten or twelve fathoms long, to the middle of the span, and made fast to the boat's bow, to drive by. The mate of the schooner told the master of the Bafil, that they had been favored in this manner in a boat once before, by driving to leeward of a mast, in a hurricane in the West Indies.

In order to account for this wonderful effect of the drift-boom, in preventing the broken water from swamping the boat, it may be observed, says Mr. Hutchinson, that waves never break till their tops are forced forwards by their great velocity beyond the perpendicular of their base; that then water falls down forward, and inclines and compresses a quantity of air, which, by the power of its elasticity, blows this force of the waves to pieces, forwards and upwards, in an oblique direction, and makes it appear like froth. They then have no buoyant power to lift a boat; but when they are high, they fill and sink her. And they break more in shallow water than in deep, in proportion as their bottoms or base are more obstructed in their velocity by the ground than their tops; hence, in very shallow water, they are continually breaking, so that they make nothing but what is called broken water, by which foals may be seen and known at a great distance in clear weather.

If we endeavour to account for the wonderful effect of so small and simple a machine, to preserve such a small boat, deeply laden as the must be with ten men, from being filled with water in such a form; in our opinion it is owing to the boat driving end on by the drift boom, that keeps it always swimming on the surface, broadside to the wind; and the waves that are running towards it, within the length of the drift boom, must certainly obstruct the velocity of the upper part of those waves, so as to lessen their increase in height, and prevent the top from running beyond the perpendicular of the base, or bottom of these waves, that occa-
sions their breaking, as has been described, but spend themselves without breaking. These reasons we hope will be thought sufficient to recommend this method to be tried and brought into practice on such dreadful occasions; and we cannot help thinking, that the same method should be tried, when under the dreadful necessity of saving lives by boats landing on a lee shore in a storm, where broken waves run high. The only difference we would recommend in the management, is to proceed with the boat's item to the drift boom, and here head to the shore, to be ready to row and steer for the bell apparent landing-place; and if it is a long flat shore, as soon as the boat strikes the ground, cut or flip the drift boom rope, that it may not haul the boat off the shore again by the back sweep of the waves.

Upon land ng a boat in a surf. Before the boat comes near the shore, pour a little oil on the water, which will prevent its breaking, and greatly allay the swell, so that the boat may approach the shore without the dread of being swallowed up in the breakers.

M. Danzel has lately invented an hydraulic machine for making a ship or boat advance during a calm, and even against a current.

The mechanism of this machine is very simple; it consists of a long pole, to the anterior extremity of which an appa-

ratus, shaped like a drawer without back or front, is attached in such a manner, that when pushed forwards it folds itself back under the pole, to which it (as it were) adheres, and presents to the water the thin cutting surface of its three edges, viz. of the bottom and two sides, which can neither oppose to the water a resistance capable of preventing the pole from penetrating farther, or of making the ship recede. When the pole, which is pushed forwards from the vessel, has attained to its full reach, the drawer, as soon as the pole is pushed back, assumes a vertical position, and presents to the water its whole cavity. By these means it embraces a column of water, which, without finding means to escape, preys on a surface much larger than that of a common ear, and keeps the drawer immovable; so that those who draw the pole towards them, instead of making the vessel recede, cause it to advance. This machine, which may be multiplied more conveniently than oars, has this visible advantage over the latter, that it opposes to the water a resistance infinitely superior, while the passive reaction of this resistance renders the labour of the mariners less laborious and more effectual.

De Chales proposes the construction of a boat, which, what burden ever it bear, shall not only move against the current, without either fails or oars, but also advance so much the faster, as the rapidity of the water is greater. Its make is the same with that of the others, excepting only a wheel added to its side, with a cord, which winds round a roller as fast as the wheel turns.

Something of the like kind has also been since done by M. Pitot. Vide Mem. Acad. R. Scien. an. 1729, p. 379, and p. 749.

M. de la Hire has given us an examination of the force necessary to move boats, both in stagnant and running water, either with ropes fastened to them, or with oars, or with any other machine: wherein he shews, that the larger the surface of the oars plunged in the water, and the smaller that of the boat presented to the water, is; and again, that the longer that part of the oar between the hand and the places where the oar rests on the boat, and the shorter that between this last point and the water, the freer will the boat move, and the greater effect will the oar have. See Oar.

Hence it is easy to calculate the force of any machine that shall be applied to rowing; viz. if we know the absolute force of all the men who row, it must be changed into a relative force, according to the proportion of the two parts of the oar; i.e. if the part out of the vessel be double the other, and all the men together can act with the force of 500 pounds, we compute first, that they will exert 300; which 300, multiplied by the surface which the oar presents to the water, gives a solid water of a certain weight, which weight may be found, and of consequence the velocity impressed on the vessel by the oars. Or, the velocity of the oars may be found in the same manner, by multiplying the 300 pounds by the surface of all the parts of the oars plunged in the water. Now would there be any difficulty in finding first the relative forces, then the absolute ones, the velocities either of the oars, or of the vessel being given, or the proportion of the two parts of the oar.

Boats fail more slowly and heavily over shallows than over deep waters. See an account of experiments for explaining this, in Dr. Franklin's Letter to Sir John Pringle. Experiments, sec. 410, 5th ed. p. 510.

Boats, Confusion of. In order to illustrate this by an example, let it be required to lay down the several parts of a long boat, the extreme length being 31 feet, and breadth moulded 9 feet.
BOAT.

Draw the straight line PO, \( P T \), \( P Q \) (Ship-building) equal to \( 31 \) feet, the extreme length of the boat, and also to represent the station of the midsip frame. From the points \( P \), \( Q \), and \( O \), draw the lines \( P T \), \( Q M \), and \( O S \), perpendicular to \( P O \). Make \( M Q \), \( Q N \), equal to the upper and lower heights of breadth respectively at the main frame, \( P T \), the height of breadth at the transom, and \( O S \), the height at the stern. Describe the curve \( T M S \), to represent the flue, or extreme height of the sides, which, in a ship, would be called either the upper height of breadth line, or the upper edge of the water. Through the point \( N \) draw a curve parallel to \( T M S \), to represent the breadth of the upper Drake of a boat, or the lower edge of the water if in a ship. The dotted line \( T N S \) may also be drawn to represent the lower height of breadth.

Set off the rake of the polled from \( P \) to \( T \), and draw the line \( P T \), to represent the aft side of the polled; then \( T R \) will represent the round up of the transom. Set off the breadth of the polled from \( P \) to \( R \), and from \( T \) to \( S \), and draw the line \( P S \) to represent the foreside of the polled, which may either be a curve or a straight line at pleasure. Set up the height of the tuck from \( S \) to \( K \). Let \( t K \) be the thickness of the transom, and the line \( Z X \) to represent the foreside of the transom.

There is given the point \( S \) the height of the flue on the foreside of the flue; now that side of the flue is to be formed either by sweeps, or frost some contrivance. Set off the breadth of the flue, and form the aft side of it.

Set up the dead-rising from \( O \) to \( J \), and form the rising line \( r i z \). Draw the line \( K L \) parallel to \( P O \), to represent the lower edge of the keel, and another to represent the thickness of the pants of the rabbet. The rabbet on the polled and flue may also be represented; and the stations of the timber agreed, as \( O \), \( 1 \), \( 2 \), \( 3 \), \( 4 \), \( 5 \), \( 6 \), \( 7 \), \( 8 \), \( 9 \); and \( Q \), \( A \), \( B \), \( C \), \( D \), \( E \), \( F \), \( G \), \( H \); and the flue plan will be completed.

The half-breadth plan is to be formed next; for this purpose the perpendiculars \( T P \), \( O G \), etc., must be produced. Upon \( M Q \) produced set off the half-breadth from the line \( K L \) to \( R \) (fig. 2); set off also the half-breadth at the transom from \( K \) to \( L \), and describe the extreme half-breadth line \( R X \), making the fore part of the curve agreeable to the proposed round of the rabbet.

We may next proceed to form the timbers in the body plan. Let \( A B \) (fig. 3) be the breadth moulded at \( O \). Erect the perpendicular \( C D \) in the middle of the line \( A B \), draw the line \( B D \) from the middle of the half-thickness of the flue, and \( x y \) the half-thickness of the frame. Then take off the several portions of the perpendiculars \( O \), \( 1 \), \( 2 \), \( 3 \), etc., intercepted between the upper edge of the keel and the rising line in the sheet-plant, and set them up from \( C \) upon the line \( C D \); through these lines draw parallel to \( A C \); take off also the several lower heights of the breadth at \( O \), \( 1 \), \( 2 \), \( 3 \), etc., from the sheet-plant, and set them up from \( C \) upon the middle line in the body plan; and draw lines parallel to \( A C \) through these points; then take off the several half-breadths corresponding to each from the floor plan; and set them off on their proper half-breadth lines, from the middle line in the body plan.

Construct the midsip frame according to the directions mentioned in that article, the form of which will in some measure determine the form of the rafter. For if a mould be made on any side of the middle line to fit the curve part of it, and the rising line, or that marked bend mould, (fig. 4.) and laid in such a manner that the lower part of it, which is straight, may be upon the several rising lines, and the upper part just touch the point of the half-line from in the breadth line corresponding to that rising upon which the mould is placed, a curve may then be drawn by the mould to the rising line. In this manner we may proceed so far as the rising line is parallel to the lower height of the breadth line. Then a hollow mould must be made, the upper end of which is left straight, as that marked hollow mould (fig. 4). This is applied in such a manner, that some part of the hollow may touch the side of the keel, and the straight part touch the back of the curve before described by the bend mould; and beginning afresh, the straight part will always come lower on every timber, till we arrive at the midsip timber, when it comes to the side of the keel. Having thus formed the timbers, as far as the whole mouldings will serve, the timbers shall then be next formed. Their half-breadths are determined by the flue and floor plans, which are the only fixed points through which the curves of these timbers must pass. Some form these after timbers before the whole is moulded, and then make the hollow mould, which will be straighter than the hollow of either of these timbers. It is indifferent which are first formed, or what methods are used; but after the timbers are all formed, though every timber may appear very fair when considered by itself, it is uncertain what the form of the side will be. In order to find which, we must form several ribband and water lines; and if these do not make fair curves, they must be rectified, and the timbers formed from these ribband and water lines. In using the hollow mould when it is applied to the curve of each timber, if the straight part is produced to the middle line, we shall have as many points of intersection as there are timbers; and if the heights above the base be transferred to the corresponding timbers in the floor plan, a curve passing through these points is called a riving line. This may be formed by fixing a point for the after-water timber that is whole moulded, and transferring that height to the flue plan. The curve must pass through this point, and fall in with the rising line somewhere abaft dead-flat; and if the several heights of this line be transferred from the flue to the middle line in the body plan, these points will regulate what is called the hauling down of the hollow mould.

The timbers in the after-body being all formed, those in the fore-body are formed in the same manner, by transferring the several heights of the riving and breadth lines from the flue to the body plan; the half-breadth corresponding to each straight must also be transferred from the floor to the body plan. The fame hollow mould will serve both for the fore and after-body; and the level lines, by which the water lines to prove the after-body were formed, may be produced into the fore-body, and by these the water lines to prove the fore-body may be described.

Another method of proving the body is by ribband lines, which are formed by sections of planes inclined to the flue plan, and intersecting the body plan diagonally, as before observed, of which there may be as many as may be judged necessary. In this, four ribband lines are laid down, marked \( D U \), which are drawn in such a manner as to be perpendicular to as many timbers as conveniently may be. After they are drawn in the body plan, the several portions of the diagonal, intercepted between the middle line and each timber, must be transferred to the floor plan. Thus, fix one foot of the compass in the point where the diagonal intersects the middle line in the body plan, extend the other foot to the point where the diagonal intersects the timber, for example, timber \( 9 \). Set off the same extent upon the perpendicular representing the plane of timber \( 9 \), from the point where it intersects the line \( K L \), on the floor plan; in like manner proceed with
with all the other timbers, both in the fore and after-body, and we shall have the points through which the curve must pass. If this should not prove a fair curve, it must be altered, observing to conform to the points, as nearly as the nature of the curve will admit; and, therefore, it may be carried vii. his one point and without another, according as the timbers will allow. For after all the ribband lines are formed, the timbers must, if necessary, be altered by the ribband lines; this is only the reverse of forming these lines; for taking the portions of the several perpendiculars intersected between the line KL and the curve of the ribband line in the floor plan, and setting them off upon the diagonal, from the point where it intersects the middle line, we shall have the points in the diagonal through which the curves of the timbers must pass. Thus, the distance between the line KL, and the ribband at timber 3, on the floor plan, when transferred to the body plan, will extend on the diagonal from the middle line to the point where the curve of timber 3 intersects that diagonal. The like may be said of all the other timbers; and if several ribband lines be formed, they may be so contrived that their diagonals in the body plan shall be at such distances, that a point for every timber being given in each diagonal, will be sufficient to determine the form of all the timbers.

In footing the timbers upon the keel, for a boat, there must be room for two futtocks in the space before, or abaft; for which reason the distance between these two timbers will be as much more than that between the other, as the timber is broad. Here it is between (a) and (A), which contains the distances between (a) and (A), and the breadth of the timber befides.

The timbers being now formed, and proved by ribband and water lines, proceed then to form the transom, fashion-pieces, &c.; see these articles.

This method of whole moulding will not answer for the long timbers afore and abaft. They are generally caoted in the same manner as those for a ship. In order to render this method more complete, we shall here describe the manner of moulding the timbers after they are laid down in the mould loft, by a rising square, bend, and hollow mould.

It was shown before how to form the timbers by the bend and hollow moulds in the draught. The fame method must be used in the loft; but the moulds must be made to their proper facings in real feet and inches. Now, when they are set, as before directed, for moulding each timber, let the middle line in the body plan be drawn acros the bend mould, and draw a line acros the hollow mould at the point where it touches the upper edge of the keel; and let them be marked with the proper name of the timber, as in fig. 4. The graduations of the bend mould will therefore be exactly the same as the narrowing of the breadth; Thus, the distance between (a) and 7 on the bend mould is equal to the difference between the half breadth of timber 7 and that of a.

The height of the head of each timber is likewise marked on the bend mould, and also the floor and breadth firmarks. The floor firmark is in that point where a straight edge batten touches the back of the bend mould, the batten being so placed as to touch the lower edge of the keel at the same time. The several risings of the floor, and heights of the cutting-down line are marked on the rising square; and the half-breadth of the keel set off from the side of it.

The moulds being thus prepared, we shall apply them to mould timber 7. The timber being first properly fided to its breadth, lay the bend mould upon it, so as may best answer the round according to the grain of the wood; then lay the rising square to the bottom of the bend mould, so that the line drawn across the bend mould at timber 7 may coincide with the line representing the middle of the keel upon the rising square; and draw a line upon the timber by the side of the square; or let the line be scored or cut by a tool made for that purpose, called a raise knife; this line so scored will be the side of the keel. Then the square shall be moved till the side of it comes to 7 on the bend mould, and another line shall be raised in by the side of it, to represent the middle of the keel. The other side of the keel must likewise be raised after the same manner, and the point 7 on the rising square be worked on each side of the keel, and a line raised acros these points to represent the upper edge of the keel. From this line the height of the cutting down line at 7 must be set up, and then the rising square may be taken away, and the timber may be fided by the bend mould, both inside and outside, from the head to the floor firmark; or it may be carried lower if necessary. After the firmarks and heads of the timbers are marked, the bend mould may likewise be taken away; and then the hollow mould applied to the back of the sweep in such a manner, that the point 7 upon it may intersect the upper side of the keel, before set off by the rising square; and, when in this position, the timber may be raised by it, which will complete the outside of the timbers. The inside of the timbers may likewise be formed by the hollow mould. The fanning at the keel is given by the cutting down before set off. The mould must be so placed as to touch the sweep of the inside of the timber formed before by the bend mould, and pass through the cutting down point.

The use of the firmarks is to find the true places of the futtocks; for, as they are cut off three or four inches short of the keel, they must be so placed that the futtock and floor firmarks may be compared and coincide. Notwithstanding which, if the timbers are not very carefully trimmed, the head of the futtock may be either within or without its proper half breadth, to prevent which a half breadth staff is made use of.

The half breadth staff may be one inch square, and of any convenient length. Upon one side of it are set off, from one-end, the several half breadths of all the timbers in the after-body; and those of the fore-body, upon the opposite side. On the other two sides are set off the several heights of the feather, and the feather on one side, and the fore-body on its opposite. Two sides of the staff are marked half breadths, and the other two sides heights of the feather.

The staff being thus prepared, and the floor timbers fanned on the keel and levelled across, the futtocks must next be fastened to the floor timbers; but they must be set first to their proper half breadth and height. The half breadth staff, with the assistance of the ram-line, serves to set them to the half breadth; for as the keel of a boat is generally perpendicular to the horizon, therefore the line, at which the plummet is suspended, and which is moveable on the ram-line, will be perpendicular to the keel, whence we may by it set the timbers perpendicular to the keel, and then set them to their proper half breadths by the staff; and when the two firmarks coincide, the futtock will be at its proper height, and may be nailed to the floor timbers, and also to the breadth ribband; which may be set to the height of the feather, by a level laid across, taking the height of the feather by the staff, from the upper side of the keel; by which means we shall discover if the ribband is exactly the height of the feather; and if not, the true height may be set off by a pair of compasses from the level, and marked on the timbers.

Juvenal (Sat. xx. v. 126—128) describes the boats of the ancient Egyptians, as if they were earthen-ware; and it is alleged, that such earthen-ware ships were used on the Nile, and that they were called "picta," painted, because these boats...
boats of baked earth were marked with various colours. However, it is much more probable, that the Egyptians formerly, as they have done in more modern times, made use of rafts, which were made to float by empty vessels of earthen-ware fastened under them. The word 'picta,' it is suggested, does not denote their being beautified with a variety of colours, but means their being rubbed with some substance that might fill up the pores, so as to prevent the water's penetrating into the cavity of the pitchers, and causing them to leak, for the Egyptian earthen-ware is said to be very porous. These rafts, however, were not constructed to pass up and down the Nile like boats, or properly designed for carrying goods upon them, but it is an easy mode of conveying their earthen-ware from Upper Egypt, where it is manufactured, to the lower parts of that country, where, when they reach the delineated place, the boat is taken to pieces and sold to the inhabitants. Harmer's Observations, vol. iii. p. 36.

Boat-hook, an iron hook with a sharp point, having a socket in which a long pole is stuck. This is a very necessary appendage to a boat, as by means of it, any thing floating past may be hooked; the boat may be held on to the ship, or pulled along, &c.

Boat-steer. In the whole fishery a person is appointed to each boat, whose express duty is to steer the boat towards the fish, &c.

Boats, bridge of. See the article Bridge.

Boat, removed with stcam. An experiment was lately tried on the canal between Grangemouth and Glasgow, to make a large boat lighter move by the power of steam. As, it is presumed, the series of experiments is not yet completed, the reader is, therefore, referred to the article Steam.

Boat skiff, the officer who has the care of the boats, fails, rigging, colours, anchors, and cables committed to him, which he receives by indenture from the surveyor of the navy, and is enjoined to use great care in the disposition of them.

It is the duty of the boatswain particularly to direct whatever relates to the rigging of a ship, after she is equipped from a royal dock-yard. Thus, he is to observe that the masts are properly supported by their throns, flays, and back-flays, so that each of those ropes may sustain a proportional effort when the mast is strained by the violence of the wind, or the agitation of the ship. He ought also to take care that the blocks and running-ropes are regularly placed, so as to answer the purposes for which they are intended; and that the flays are properly fitted to their yards and lyes, and well furled or reefed when occasion requires. It is likewise his office to summon the crew to their duty, to all with his mates in the necessary business of the ship; and to relieve the watch when it expires. He ought frequently to examine the condition of the masts, flays, and rigging, and remove whatever may be judged unfit for service, or supply what is deficient; and he is ordered by his instructions to perform this duty with as little noise as possible.

The boatswain is not to cut up any cordage or canvas without an order in writing from the captain, and under the inspection of the master; and always to have by him a sufficient quantity of small plate for securitv of the cables.

He is not to sign any accounts, books, lists, or tickets, before he has thoroughly informed himself of the truth of every particular therein contained. His accounts are to be audited and vouched by the captain and master, and presented to the surveyor of the navy; and until such accounts are passed, he is not to receive any wages. If he has cause of complaint against any of the officers of the ship, with relation to the disposition of the stores under his charge, he is to represent the same to the Navy-board before they pay off the ship. Fifteen years service entitles a boatswain to superannuation.

The Boatswain's Mate has the charge of the long boat, anchors, cables, &c.; he must give an account of his stores, and he is appointed to execute the sentence of a captain or court martial.

Boats, train of, a number of small vessels fastened to each other, ascending up the Loire in France, by falls when the wind serves, otherwise towed by men, sometimes to the number of twenty or sixty to a single rope.

Boat-bill, in Ornithology, the English name of a species of Canicroma, cachicn, Brown's Illustrations. Or, more properly, at this time the English name of the Canicroma genus, C. Cachicn, being called by the modern writers the crafted boat-bill, and C. Canicroma, g. the white-billed boat-bill. These are the two only species known. See Canicroma.

Boat, scapha, in Surgery, a species of bandage, used when the crown of the head and the part between that and the forehead are to be bound. It is likewise called thes douleurs.

Boat fly, in Entomology. See Notonecta.

Boat island, Geography, a small island in the gulf of St. Lawrence, near the south coast of Labrador. N. lat. 50° 2', W. long. 60° 55'.

Boat Passage, a channel into Flecable harbour, in Duty Bay, New Zealand.

Boating, a kind of punishment in use among the ancient Persians for capital offenders. The manner of boating was thus: the person condemned to it being laid on his back in a boat, and having his hands stretched out, and tied fast on each side of it, had another boat put over him, his head being let out through a place fit for it. In this posture they fed him, forcing him to eat by thrashing sharp iron instruments into his eyes, till the worms, which were bred in the excrements he voided as he thus lay, eat out his bowels, and thus caused his death, which was usually twenty days in effecting; the criminal living all this while in most exquisite tortures. On his face, placed full in the sun, they poured honey, enticing the flies and wasps to torment him. Pittarch tells us, that Mithridates, whom Artaxeres condemned to this kind of punishment, for pretending to have killed his brother Cyrus, lived seventeen days in the utmost agony; and that, when the uppermost boat was taken off at his death, they found his flesh wholly consumed, and swarms of worms gnawing his bowels. Hiero- nat. I. c. 143, 150. Phil. in cri. Artaxeres.

Boatium civitas, in Ancient Geography, a town of Gaul, and one of the twelve cities of Novampopolania.

Boat's kids, in Naval Architecture, are long square pieces of fir, extending across the ship from the gang-boards, on which the boats, long masts, &c. are rowed.

Boa, or Ball, in Horology, is the metallic weight which is attached to the lower extremity of a pendulum rod, by means of a tapped adjusting nut, at such a distance from the point of suspension as the time of a given vibration requires. (See the articles Centre of Oscillation and Pendulum.) In fixing upon a proper bob for any pendulum, two things are particularly to be attended to; the shape which is bell calculated for meeting with the least refraction from the air; and the weight which is best adapted for preserving the isochronism of the vibrations with a given maintaining power. Each of these considerations has been the subject of much investigation. A sphere is a solid, the surface of which bears the least proportion to its solidity of any other, and a cube is one with great extent of surface compared to its solid contents; consequently, the former shape...
has obtained in cannon balls, intended to pass through the air: with as little obstruction as possible, and has sometimes, for the same reason, been applied as a bob for a pendulum. Such a figure is better adapted for a large bob than a small one; for the increase of the surface is in proportion to the square of the diameter, whereas the increase of weight or quantity of matter is as the cube. Mr. B. Martin (Mathematical Institutions, vol. ii. p. 417.) proposed two equal frusta of similar cones, to be joined together at the bases, as a figure approximating nearly to a solid of least resistance, and recommended it as that out of which the middle one of three segments, cut longitudinally, will constitute the best shape for an appended weight, to answer the purpose of avoiding resistance. Such a section, he conceived, would displace but a small quantity of air in one vibration, and the impulsive force of that quantity, being made obliquely on the sloping surfaces of the ends, would produce but a small effect. The lenticular shape, however, composed of two segments of a large globe joined to the line of section, has been generally adopted by clock-makers, probably because two plates of brass of that shape can be easily folded together, and left hollow, so as to be filled with lead, or other heavy metal, in order to obtain a due degree of weight without adding to the thickness, which is an advantage that brads or copper cannot have of itself in any shape. M. Ferdinand Berthoud (Elle 1t l'Houlergerie, tome ii. chap. xiii.) made some experiments with bobs of both a spherical and lenticular shape, of equal weight, attached successively to the same free pendulum, from which it appeared, that, in the same temperature, the latter continued to vibrate seconds much longer than the former before they arrived at the quiescent state, which experiment was considered as a proof that the lenticular shape has the advantage in escaping the effect of resistance; it was discovered, however, on a repetition of the experiment, with seconds and half-seconds pendulums, that the friction at the point of suspension occasioned by heavy weights, particularly when vibrating in long arcs, made considerable alterations in the results, and proved itself a second source of resistance to the free motion of the pendulum.

The second condition to be attended to in making the bob, as has been said, is the weight which a given pendulum requires, with a given maintaining power. No theory is adequate to determine this deference of itself, because the diminution of the maintaining power by the friction of the pivots and the plate of the oil, the duration of the impulse on the pallets, the nature of the escapements in other respects, the resistance of the air, and at the point of suspension, and particularly the nature and quantity of momentum of the pendulum, must all enter into the calculation; and these are data, many of which are constantly varying. The momentum, or whole quantity of motion of any pendulum, is the weight multiplied into the square of its velocity, so that a large arc with a small weight, and a small arc with a corresponding large weight, ceteris paribus, ought to have an equal effect upon the isochronism of the same pendulum; but the theory is not perfect; for first, large circular arcs deviate considerably from cycloidal ones, which, it has been demonstrated by Huygens and others since, are those which have the isochronal property in an uniformly dense medium; and secondly, they require a greater maintaining power than calculation gives: for instance, where the arc is 10 from the point of rest, the addition to be made to the maintaining power beyond calculation is 57 parts in 100, according to Berthoud's experiments, which consideration induces him to conclude, that irregularities in the maintaining power will affect the momentum principally composed of velocity, more than the momentum principally composed of weight; each kind of momentum, however, has its peculiar disadvantage; for great velocity is subject to great resistance from the air; and great weight to much friction at the point of suspension.

Mr. Alexander Cummings was an advocate for a large arc with a small bob; but modern practice is in favour of a large ball or bob with a short arc of vibration. It seems to be generally allowed, that the momentum of a pendulum ought to be as great as possible for a given maintaining power, provided the latter be sufficient to overcome all obstacles to constant motion; but as the momentum is obtained in two different ways, it may be proper to subjoin here an illustration of them.

If a pendulum, moving in an arc of one degree from the quiescent point, with a bob or ball of fix pounds, has its momentum denominated by unity, then the square of any given momentum will give its corresponding weight for another bob, moving in the same arc; or the square root of the given momentum will give the arc of semivibration with the same weight; for instance, a momentum 4 will require $6 \times 4 = 24$ for the weight where the arc remains unaltered; but the root of $4 = 2$ will be the arc from the point of rest with the same weight; again, if the momentum be required to be 9 for a given maintaining power, the weight must be $54$, or the arc $3^\circ$ from the point of rest, and in the same proportion for any other momentum; but, in fact, both the weight and arc may be varied according to circumstances, which latitude affords great variety in the adjustment of the bob, and matter for multiplied experiments to determine what weight and arc shall be most desirable, taken conjointly under different circumstances.

The most practical method of adjustment of the momentum of a pendulum, where a weight is used as a maintaining power, seems to be, to try this power instead of the weight of the bob or ball, which, when once finished, of the requisite shape, is not so easily altered. In pendulum clocks, actuated by a spring as a maintaining power, such adjustment cannot indeed be made in the power properly without changing the spring, or altering the fusee after they are adjusted to each other; but sundry instruments are not intended to measure time with great nicety, the adjustment of the bob to the maintaining power is exactly done by guesses. In Huygens's bell clock, the maintaining power was equal to three pounds, falling about 90 inches in 24 hours, and the ball of its seconds pendulum, together with the pendulum itself, was also three pounds; but the nature of his escapement required the vibrations to be performed in long arcs. Cummings tried different weights for his pendulums from 6 to 16 pounds, and various arcs from 3° to 6° from the point of rest; but it does not appear that any other standard has been adopted by clock-makers than what agrees with the individual opinion of each. See Maintaining Power.

Bob, in Ringing, denotes a peal confining of several courses, or fets of changes.

Bow-fly, in Sea-Language, a rope used to confine the bowspirt of a ship downward to the stem, or cut-water, and to counteract the force of the stays of the fore-mast, which draw it upwards.

It is fixed by thrashing one of its ends through a hole bored in the fore-part of the cut-water and then flogging both ends together, so as to make it two-fold, or like the link of a chain; a dead-eye is then felled into it, and a hawser passing through this, and communicating with another dead-eye upon the bowspirt, is drawn extremely tight by help of mechanical powers. The bow-fly is the first part of a ship's rigging, which is drawn tight to support the masts. With this view, it is usual to suspend a boat anchor, or other weighty body, at the bowspirt end, to press it downwards during the operation.

Bow-fly-holes, are those holes in the stem, or fore-part of the knee of the head, to which the bow-fly is fastened. 

BOBAC,
BOBAC, in Zoology. The bobac of the French and English writers is a sort of *Marmot* with small, and somewhat oval ears; tail hairy; a claw upon the fore thumb; and the body grey above, and yellowish beneath. Guenel calls this animal *arctoynus bobac*.

There appear to be two varieties of this species, if not more. The bobac of Rzzaczinski (Nat. Hist. Pol. p. 253.) described by Briffon, in his History of Quadrupeds, under the name of *marmotta polonica*, is of yellowish colour, inclining to reddish upon the head; but the bobac described by Pallis is of a greyish brown colour, with only the under parts yellow. In every respect, except the colour of the hair, these two varieties agree.

This creature is rather larger than the rabbit, measuring about sixteen inches from the nose to the base of the tail, the latter of which is four inches and an half in length; so that the whole animal measures above twenty inches. Dr. Pallis, to whom we are chiefly indebted for an account of the bobac, tells us, that it is a native of the high, but milder and funny sides of mountainous countries, which abound with fiftile, or free-stone rocks, where it is found in dry situations, and such as are full of springs, woods, or fand. It abounds in Poland and Ruffia, among the Carpathian hills; it swarms in the Ukraine, about the Borithenes, especially between the Salo and Supoy; and again between the Borithenes and the Don, and along the range of hills which extend to the Volga. It is found about the Yakk and the neighbouring rivers; and inhabits the southern part of Great Tartary, and the Altay mountains, east of the Iris. It caues to appear in Siberia, on account of its northern situation, but is found again beyond the lake Bai-kal, and about the river Aragh and the lake Dalay, in the funny mountains about the Lena, and very frequently in Kamtchatka, but rarely reaches as high as latitude 55°.

The bobac is not considered as an article of food by the Mahometan Tartars. The Coslacks and the Calburns, on the contrary, hunt and kill them for eating; the flesh, however, is very fat, and not in much esteem for the goodness of its flavour. In its manners of life the bobac resembles those of the Alpine marmot, with which it has been apparently sometimes confounded. It inhabits deep burrows, in societies of from twenty to twenty-four in each receptacle. Their habitation is lined with the finest hay; and it is said, the quantity found in every such receptacle is sufficient for a night's provender for a horse. In the morning, or the middle of the day, when the fun shines, they go abroad in search of food, always taking the precaution to station one of the party at the entrance of their cell as a sentinel, who announces the least approach of danger with a whistle; and all, if within hearing, are thus enabled to provide for themselves in the best manner circumstances may require, either by returning for shelter to their cell, or remaining at a distance till the danger is over. The marmot, when attacked, rear's itself upon the haunches, and defends itself with the fore paws. It eats with the fore paws, in the same posture. The bobac is an animal of a mild and gentle disposition, and may be easily domesticated. They are torpid throughout the winter, unless kept in a warm room. They breed early in the spring, and are ready to produce five or eight young. The fat of this creature is used for dressing furs and leather.

BOBAN, in Geography, a town of Arabia, 32 miles S. of Saudo.

BOBART, Robert, in Biography, curator of the botanical garden at Oxford, which had been lately instituted by Lord Danby, published in 1698, "Catalogus plantarum horti medi ci Oxoniensis," 8vo. The catalogue gives the names of about 1600 plants, many of them from Canada, first the Latin, then the English names, in alphabetical order. This was re-published in 1678, considerably improved and enlarged to more than double its bulk; Bobart being assisted in the work, as he acknowledges, by Dr. Philip Stevens and Wm. Brown, M. A. Besides the trivial names of the plants, there were now added those from Gerard, Parkinson, and Baubine, which were not in the first edition. Bobart died in 1679, at the age of 81 years.

BOBART, Jacob, who succeeded his father, as curator of the garden, published, in 1699, the third volume of Morrison's "Plantarum historia universalis Oxoniensis, seu herbam distributio nova, per tabulas cognoscitios. ex natura libro dicta," fol.; making up by his own industry and sagacity what was deficient in the loose and imperfect sketches left by the author at his decease. There is an ingenious paper by this writer in the Philosophical Transactions for the year 1683, on the effects of the great flood, which happened the preceding winter, on trees and other plants. Many oak, elm, ash, walnut, and other trees, were found, he says, with large rents or clefts in different parts of their trunks, in the large branches, and in such parts of their roots as were not sunk deep into the earth. Parts, he adds, that were so knotted, that they could not have been split but with great difficulty with hedges and wedges, were rent atunder the force of the ice contained within them, making, at the time of freezing, a noise like the explosion of gunpowder. It was supposed, that the trees which suffered were diseased, that some of the vessels were diileden or burst, and that the effect was produced by the freezing of the sap or other juices contained in these cavities. Philos. Tran. abr. vol. iii. p. 89. Hailer. Bib. Botan.

BOBARTIA, in Botany, (named in honour of James Bobart, formerly professor of botany at Oxford,) a genus formed by Linnaeus for a plant said to grow in the East Indies, with the following essential character:—Glance of the calyx numerous; the exterior one short, univalved; the interior longer, bivalved; glance of the coroll single, shorter than those of the calyx, sitting on the cor; the leaves, in the genus *Bobartia*, are serrated. This generic character was first published in the Amicitiae Academicae, vol. i. p. 113. (Lund. Bat. Ed.) and in the Species Plantarum a reference is given to Scheuchzer, Gram. 369. Reichard added another supposed synonym from Phutenet tab. 50. fig. 17. Schreber, Juliana, La Mark, and Bosc, have all taken it up from Linnaeus; and La Mark, in his Illustrations, has copied Phutenet's figure. Wuldenew, in his new edition of the Species Plantarum, has abolished the genus; ascertaining on the authority of Schmacher (Act. Soc. Nat. Hafn.), that Linnaeus drew up the character of his botaria from a mutilated specimen of *morea* spadicea, first completely described by Thunberg, and adopted by Linnaeus the younger in the Supplementum Plantarum, p. 99.

The mistaken synonyms of Scheuchzer and Phutenet are referred by Wildenow to cyperus arenaria of Retz, of which Phutenet's figure, copied by La Mark, is said to be a good representation. A figure of *morea* spadicea is also given by La Mark under its proper genus.

BOBARTIA. See also Ruboeeria Prepara.

BOBBIN, in Commerce, a term denoting about a quarter of a hundred of undressed flax.

BOBBING, or Bobbin, a little piece of wood turned into a cylindrical form, wherein thread is wound, to be used in the weaving of bone-lace. The French also give the denotation bobine to what among us is more properly called a jet or quilt. In which they are also followed by several English.

In this general sense, bobbins are used to wind threads, worsted, hair, cotton, silk, gold, and silver; and they are
of different lengths and sizes, according to the materials which are fpun or wound.

Borsing for Eels, among Fishermen, is an amusing method of catching eels, generally prated from the side of a boat, the ends of bridges, wharf, or other situations where deep water can be at once reached. The bait made up of may be either foucred lob worms, or garbage of any kind; which bait of whatever kind is fixed lengthways on worldled, so as to completely cover it; some yards are prepared in this way, which are then tied up in links, making something like a bundle of fringe. So prepared, the bait is suspended from a strong rod or pole by two or three yards of pack-thread, led about a foot of the worms with more or less weight according to the strength of the current. The bait and lead must be sunk to the bottom, and suffered to remain, when the fish will soon be felt to nibble; but time must be allowed for them to take their hold securely, after which they may be gently pulled up to within a small distance, when a flight jerk will secure them. The mouths of rivers, muddy and deep places, where the tide reaches, are particularly favourable for this sport.

BOBBIÖ, or Bobio, Bobium, in Geography, a small town of Itay, and capital of a district of the same name, formerly belonging to the duchy of Milan, seated on the river Trebia, the tee of a bishop, suffragan of Genoa, 50 miles N.E. of Genoa. It is now a canton of the district of Alexandria, in the department of Marengo.

Bobbio. See Bobbio.

BOBENHAUSEN, a town of Germany, in the circle of the Upper Rhine, and principality of Upper Hesse; 17 miles east of Giften.

BOBENNEUKIRCHEN, a town of Germany, in the circle of Upper Saxony, and the Vogtland; 6 miles S.W. of Oellnitz.

BOBER, a river which runs into the Oder, at a small distance to the west of Croffen in Silefia.—Allo, a town of Lithuania. N. lat. 55° 49'. E. long. 25° 46'.

BOBERG, a high promonoty in the prefecture of Bohning, and dioce of Ripen, in Denmark, near which the coal is very dangerous, and has proved fatal to many ships.

BOBERSBERG, a town of Silefia, 9 miles S.W. of Croffen, and 28 S. of Franckfort on the Oder.—Allo, a town of Germany, in the circle of Upper Saxony, and duchy of Croffen, 6 miles S. of Croffen.

BOBI, in Conchology. Adamson gives this name to the variety of velutina pericusta.

BOBISATIÖ, or Boberisatio, in Music, denotes the using of the seven syllables, bos, ce, di, gi, lo, ma, ni, to express the seven musical notes in lieu of the six usual ones introduced by Aretine, ut, re, mi, fa, sol, la, as has been sometimes done by the Netherland and German musicians since the beginning of the seventeenth century, to avoid the mutation necessary in the use of these latter.

BOBLINGEN, in Geography, a small town and district of the same name, of Germany, in the duchy of Wurttemberg, situate in a fertile country, and in the forest of Schonbuch, which abounds with game, having a castle seated on an eminence lying above the town. The district contains 12 parishes; and the vicinity produces fome wine.

BOBR, a river of Lithuania, which runs into the Dnieper; 5 miles S.S.E. of Rohaczow.

Bons, in Zoology, a kind of marine otter, so called by the Russians, who reside at Kamfchakta, the precise species of which is doubtful. Some have imagined it to be allied to the catler.

BOBRTZSCH, in Geography, a town of Germany, in the circle of Upper Saxony; and country of Erzgeberg, 4 miles S. E. of Freyberg.

BOBROE, a district of the government of Voronez, in Russia, seated on the Bilinik, falling into the Don.

BOBROWNÍK, a town of Poland, in the palatinate of Lublin, 24 miles W.N.W. of Lublin.

BOBRYSEL, a town of Lithuania, in the palatinate of Minsk, seated near the river Berezyna. N. lat. 53°. E. long. 20° 42'.

BOBÍI, a town of Lithuania, in the palatinate of Troki. N. lat. 55°. E. long. 24° 15'.

BOCA. See Bocca.

Boca Efond'da, in Geography, a bay of North America, in the bay of Campechy, on the coast of Yucatan. N. lat. 18° 50'. W. long. 91° 46'.

Boca Grand, a bay of North America, at the mouth of the river Zucar, on the S.E. coast of Colita Rica. N. lat. 10° 50'. W. long. 83° 26'.

Boca Terra, a bay of North America, in the Caribbean sea, on the coast of Veragua. N. lat. 8° 38'. W. long. 82° 11'.

BOCABRITO, a town of North America, in the country of New Navarre, 65 miles east of Cibalaba.

BOCA-CHICA, the strait or entrance into the harbour of Cartagena, in South America; which was filled up since the attack of the English in 1741, who, having made themselves masters of the forts which defended it, entered the bay with an intent of taking the city; but their attempt miscarried, and they were obliged to retire with considerable loss. This event produced orders for opening the old entrance, by which all ships now enter the bay.

BOCA-DEL-DRAKO, a strait between the island of Trinidad and Andalucia, in the province of Terra Firma, South America.

BOCAGE, a small corner of France, in Normandy, of which the principal place was Vire.

BOCALIEAU, a small island, near the east coast of Newfoundland. N. lat. 49° 15'. W. long. 52° 26'.

BOCAMELE, in Zoology, the provincial name of an animal of the Mustella tribe found in the island of Sardinia. This is believed to be the creature described by Aristotle by the name of Bist.

BOCANA, in Ancient Geography, a town situate in the eastern part of the island of Taprobana. Ptolemy.

BOCARDO, in Logic, the fifth mode of the first figure of syllogisms, wherein the first proposition is particular and negative; the second, universal and affirmative; and the third, or conclusion, particular and negative, Thus:

BOC Some animal is not man.

AR Every animal has a principle of sensation.

DO Therefore something has a principle of sensation, that is not man.

BOCAS, LAS, in Geography, a town of North America, in New Biscay, 120 miles E. of Parmal.

BOCAT, the name of a valley in Syria, in which are the ruins of Balbec, of which Mr. Wood says, it might by a little care be made one of the richest and most beautiful spots in Syria; for it is more fertile, he adds, than the celebrated vale of Damascus, and better watered than the rich plains of Edfracon and Rama. In its present neglcted state, it produces corn, some good grapes, but very little wood. Here, it is supposed, was situated "Baal-hamon," which was the marriage portion of the bride of Solomon. Sol. Song. viii. 12. This estate was leased out to a variety of tenants, each of whom paid her a clear rental of a thousand flocks of silver, amounting to about 120,168 s. sterling. Harmer's Outlines of a New Commentary on Solomon's Songs, p. 35. Good's Songs of Solomon, Pref. p. 13.

Bocat was also called "Bekah," which see. See also Balbec.

BOCAUD
BOCAUD, John, in Biography, born at Montpellier, where he received his education. In 1543, he was made doctor; and in 1544, on the death of Denis Fontenau, professor of medicine in the university there, an office he is said to have filled with distinguished honour to the time of his death, which happened in 1558. We have only one work published by this writer; "Tabula curationum et indicationum ex profuso Galeni methodo, in summa rerum capita contracta," fol. Lyons, Haller, Bib. Med. Pract. Eloy, Dict. Hist. Med.

BOCCA, a term used both in the Levant and on the N.W. coast of South America, or the Spanish main, for a mouth or channel into any part or harbour, or the entrance into a found which has a passage out of it by a contrary way. See Boca.

BOCCA, in Geography, a town of Italy in the duchy of Mantua, in the Comesicia, 5 miles N.N.E. of Sабione ta.

BOCCA Tigris, a name given by foreigners to the river Pe-kiang of China, near its discharge into the southern sea of China. See Pe-Kiang.

BOCCA, in Gia's making, the round hole in the working furnace, by which the metal is taken out of the great pots, and by which the pots are put into the furnace. This is to be filled with a cover made of earth and brick, and removable at pleasure, to prevent the eyes of the workmen from the violence of the heat.

BOCCACCIO, or BoccacinCio, Camillo, in Biography, a painter of history and portrait, was born at Cremona in 1511; and, having received instructions in the art of painting from his father, removed to Rome, and assumed the Roman name. His application was indefatigable, and his improvement so observant, that he was immediately employed in several noble works for the churches and convents. He died young in 1546, when he was making rapid progress towards very high perfection. Pilkington.

BOCCACCINO, Anthony, a surgeon of Comacchio, a town in Ferrara, flourished in the early part of the last century. Reviving the practice of Magatus, in the cure of wounds and ulcers, which had fallen into disuse, he admitted no oily or greasy applications in the treatment of them, nor made use of tents or injections in the cure of abscesses, which, by irritating the parts, prevented, he said, their union, and frequently occasioned the offices to become callous. His works, illustrating his practice, are "Cinque difingiulgri Chirurgici, per la cura delle ferite," Venice 1713, 8vo. treatment of the cure of gun-shot wounds; "Cinque disingiulgri Chirurgici, per la cura delle ulcere," Ven. 1714, 8vo. with observations explaining and defending the doctrine of Magatus. Haller Bib. Chirurg. Eloy. Dict. Hist. Med.

BOCCACIO, or Boccace, John, an eminent Italian writer, and one of the reformers of literature in Europe, was born of parents in low condition at Certaldo in Tuscany, in 1313. Declining that mercantile occupation for which he was originally designed, and in which he spent some of his earlier years, he devoted some time to the study of the canon law; but as soon as he had an opportunity of cherishing for himself, he purged a course of literature; and with this view sought instruction from the best masters, and at Florence put himself under the tuition of Leonzio Pilato for the Greek language. Heavies the advantage he derived in furnishing his mind with stores of literature, and in cultivating a good taste, from conversation with the most learned men of his age, and from collecting and copying the most approved Greek and Latin writers of antiquity, he was particularly indebted for his progress in learning, and for his future reputation to the instruction and patronage of Petrarch, who was eminently useful to him both by his advice and by supplying him with money for aiding the prosecution of his studies, when his own patrimony was exhausted. By a diligent improvement of all these advantages, he acquired such reputation, that the republic of Florence conferred upon him the honour of citizenship, and employed him in a variety of public transactions. Among other important commissions with which he was entrusted, that of negotiating the return of his friend Petrarch to Florence was particularly agreeable to him. But though his message to this purpose did not succeed, it afforded him an opportunity of establishing a more intimate and confidential correspondence with this patron of his youth. In 1353, two years after his visit to Petrarch, he was sent to pope Innocent VI at Avignon. At this time he lived freely, and devoted himself chiefly to poetry and compositions of a lighter kind. During his rambles in Italy, he visited Naples, as some have said, in the year 1341, where he was favourably received by king Robert, and where he resided for some time. Here he fell in love with a young person whom he calls Fiametta, and who is commonly supposed to have been the natural daughter of Robert. In 1359, he had, with a conference with Petrarch at Milan, the result of which was his indulging more serious reflections than he had hitherto done; and having received an admonition in 1361, that his life would not be of long continuance, and that he would soon abandon poetry, his mind was so impressed that he immediately determined to relinquish his poetical labours, and even the perilous and prolix authors, and, against the counsel and remonstrances of Petrarch, to part with his library. About this time he transferred the clerical habit, and adopted a plan of conduct more guarded and regular than that of his past life. In 1362 or 1363, he again visited Naples; and without making any long stay there, went to Venice, and passed three months with his friend Petrarch. He was again deputed by his countrymen as ambassador to pope Urban V. at Avignon; and in 1367 he attended the pontiff under the same character at Rome. A public lecture on the "Comedia" of Dante, having been instituted at Florence, he commenced his explications of that author in October, 1373; but, preferring the retirement of Certaldo, his native place, towards the close of his life, he died there in December, 1375. Boccacio was a voluminous writer both in prose and verse. His works in Latin were, a mythological treatise in 15 books, "De Genealogia Deorum," Baii, 1532, fol. claimed excellent at the time when it was written, but long since superseded by more valuable publications of a similar kind; to this was annexed a "Tractate on Mountains, Rivers, Seas, Lakes, &c.;" with respect to both thefe he has been charged with plagiarism; "An Abriffment of the Roman History," from Romulus to the year of Rome 724, with a parallel of the seven kings of Rome and of the emperors to Nero, inclusively, Colong. 1534. 8vo.; an historical treatise, in nine books, entitled "De Calibus vivorum et farnata rum illuftrum," beginning with Adam, and terminating with John king of France taken prisoner by the English at the battle of Poitiers, 1356, which work was translated into Italian, Spanish, French, and English, printed at Augsburg, in 1544, and in French at Lyons, in 1453, and at Paris in 1578, by Claudius Vitart, under the title of "Traite des Meuifaetures des Personnelles figures," 8vo.; and another book "De claris mulchibus." He also wrote in Latin a number of eclogues. In Italian poetry, his compositions were the "Thriacije," in 12 books; the "Filo rat," the "Ninfal Fiocchez," &c. &c. But though he was reckoned one of the three princes of the poets of that age, he is ranked only as the third of the triumvirate, precedence being assigned to Dante and Petrarch. It is
tial, that he was duly sensible of his inferiority; and that, after having seen the sonnets and songs of Petrarch, he determined to throw his own into the fire. His profane works, which are more valuable, are his "Commentary on Dante," printed at Rome in 1544, 16to.; and at Florence, in 1576, 8vo. some romances of an amorous kind, intermixed with verse, as "Il Filicone," "La Flaminetta," "L'Amorito," "Il Laberinto d'Amore," &c. &c. But his most celebrated production of this kind is his "Decamerone," or collection of one hundred stories, or novels, feigned to have been recited in ten days by a company of ladies and gentlemen, who had retired into the country from the plague of Florence in 1548. These stories are partly founded on fact, and partly the productions of the author's own imagination; and they present a curious exhibition of character and manners in all the ranks of society. They abound with fictitious strokes levelled against the vices and frauds of the priests, and even the mysteries of religion; and the language, in some parts, is so free and licentious, that we may well wonder at their being recited before females of character and condition. However ripe and vulgar many of the reflections may now appear, the style in which they are delivered is considered as a model of elegance and purity for the age in which they were written, and places the Italian language far beyond that of any modern nation at so early a period. No work was ever more popular, or more generally translated, than the Decamerone. The stories that occur in this work have furnished materials for some of the most popular pieces of La Fontaine and other similar writers. Boccace assumes the liberty of having lifted the writings of Homer and of several other Greek authors from Greece to Tuscany, and he was, without doubt, a most industrious and indefatigable copyist of the remains of antiquity. His poetry is pronounced by his countrymen to be as fecile and languid in its character, as his prose is exquisite and admirable. His valuable library was bequeathed to a convent in Florence, where it was long preserved. For a further account of his life and writings, see Fabriucius's Bibl. Lat. medi. vol. 1. p. 248; &c.; and Tiraboschi, tom. v. p. 82. 439—451. Gen. Dict. Burney's Gen. Hist. Musée, Vol. II. p. 338, &c.

BOCCAILE, or Bocca, a liquid measure used at Rome, answering to what among us is called a bottle, being equivalent to about an English quart. Seven boccale and an half make the rubbia.

BOCCALINI, Trayan, in Biography, a satirical writer of the 16th century, was the son of an architect at Carpi, and born at Loretto in 1536. At Rome, where he principally resided, he had access, by the vivacity of his genius, to several persons of rank, and among others to cardinal Bentivoglio, whom he instructed in geography. Protected from the danger to which his satirical turn exposed him, by the influence of the cardinals Borghese and Gaetani, he also, by their recommendation, obtained several offices of trust and honour in the ecclesiastical state, and was appointed to the government of Beuceno. But his public conduct occasioned complaints, and he became obnoxious to the Spaniards, by exposing with freedom and severity their delinquencies against the liberty of Italy, so that he was under a necessity of retiring to Venice in 1612. In the following year, it is said that he was assassinated by four ruffians, who broke into his chamber at an early hour in the morning, and beat him to death with sand-bags as to occasion his death. Of his works, the most celebrated is his "Ragguagli di Parnaso," or news from Parallus, in which, under the fiction of a court in which Apollo presides, he takes occasion to satirize the actions and works of several persons who pass under review; but his reflections frequently betray the want of critical judgement and of a regard to truth. A second part of this work written with the same views, is entitled "The Secretary of Apollo." His "Political Touchstone," levelled against the Spaniards, is of a similar kind. He also wrote the "Political Balance," "Commentaries on Tacitus," and some other works. Tiraboschi. Gen. Dict.

BOCCARELLO, in the Glas.-Manufacture, a small hole or aperture of the furnace, one of which is placed on each side of the bocca, almost horizontally with it. Out of them the fitters take coloured or finer metal from the piling pot.

BOCCAS, in Ichthyology, the Arabian name of a fish belonging to the Scorber genus, observed by Forfkal in the Red Sea. Vide Scorber Sansun.

BOCCHERINI, Luigi, in Biography, was born at Lucca in 1756, where he refused till 1763, when he went to Paris, and where he continued till 1780. He then removed to Madrid, where, if living, he still remains. His instrument is the violoncello, and though he writes but little at present, he has perhaps supplied the performers on bowed-instruments and lovers of music with more excellent compositions than any master of the present age, except Haydn. His style is at once bold, masterly, and elegant. There are movements in his works, of every style, and in the true genius of the instrumets for which he writes, that place him high in rank among the greatest masters who have ever written for the violin or violoncello. There is perhaps no instrumental music more ingenious, elegant, and pleasing, than his quintets; in which invention, grace, modulation, and good taste, coalesce to render them, when well executed, a treat for the most refined hearers and critical judges of musical composition. A complete list of the works of this excellent composer would be of use to judicious collectors, as his genius, taste, and judgment were too fertile and refined, to suffer him to commit to paper frivolous or indigested thoughts. His productions of 40 years ago have lost nothing of their worth, nor will 40 years more wholly deprive them of their bloom.

BOCCETTA, in Geography, a chain of mountains, over which is the high road between Lombardy and Genoa; on the summit of the highest, which is very steep, is a way so narrow that three persons can hardly go abreast, called "The Pafs of Bocchetta," defended by forts, and considered as the key to the city of Genoa. In 1746 the inhabitants, having made themselves masters of this pass, found little difficulty in proceeding to that capital. In 1758, a magnificent road was made from the Bocchetta to the north of Genoa, through the Polvezera, which, for the space of three years, employed from 5 to 800 men, by the patriotic munificence of one noble family, the Cambias. The Polvezera in the Bocchetta yields a beautiful stone which is ferruginous, of various colours veined with marble.

BOCCIANICO, a town of Italy, in the kingdom of Naples, and province of Abruzzo citra, 3 miles S.E. of Civita di Chieti.

BOCCIARDI, Clementi, called Clementone, in Biography, a painter of history and portrait, was born at Genoa in 1620, and after having been the disciple of Bernardo Strozzi, went to Rome for improvement, by a judicious observation of the ancient sculptures, and the works of the celebrated modern artists. By the efforts of his own excellent genius, and a diligent application to design, he discovered the art of blending the antique and modern gifts in a style both of grandeur and gracefulness. Most of his works (his portraits excepted, which were lively, natural, and graceful,) are in the chapels of Genoa, Pisa, and other cities of Italy, where they are much admired. Pilkington.

BOCCOLD, Boscold, of Beverley, John, commonly called "John of Leyden," a journeyman-taylor, of Leyden, who, in the earlier part of the 17th century, connected
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connected himself with John Matthias, a baker of Harlem, and with his assistance displayed the alarming effects of fanaticism and enthusiasm. These two anabaptist prophets, for this was the appellation which they assumed, fixed their residence at Munster, in Weitphalia, and at length gained such a number of profelytes, that they became matters of the city, and established in it a new form of government, directed by Matthias, who issued his commands, with the fyle, and with the authority of a prophet. Matthias, having pillaged the city, unballied large hoards of wealth, and reduced all ranks to an equality, provided for its defence, by repairing and extending its fortifications, by forming all his followers, who were capable of bearing arms, into regular bodies, and by endeavouring to add the vigour of discipline to the impetuosity of enthusiasm. After these preparations, he sent out emissaries to the anabaptists in the Low Countries, inviting them to assemble at Munster, which he dignified with the title of Mount Zion, and from thence he proposed that they should set out to reduce all the nations of the earth under their dominion. The bishop of Munster, justly alarmed at these horrible appearances, assembled an army, laid siege to the town, and slew Matthias, with 300 of his attendants, in their first frantic folly. Matthias in the same year 1534. was succeeded by Boccold, who, more cautious than his predecessor, satisfied himself with carrying on a defensive war, whilst he waited for the succours from the Low Countries, which he encouraged his deluded followers to expect. But though less daring in action than Matthias, he was a wilder enthusiast, and of more unbounded ambition. Accordingly he marched naked through the streets, and proclaimed with a loud voice, "That the kingdom of Zion was at hand; that whatever was sown on earth should be brought low, and whatever was low should be exalted." In order to verify his declaration, he commanded the churches, and the most lofty buildings in the city to be levelled with the ground; and depriving Chipperdorling one of the most considerable of their profelytes of the confiftuhip, the highest rank in the commonwealth, he degraded him to the humiliating office of common executioner. In place of the deposed seniors, he named 12 judges, according to the number of tribes in Israel, and referred to himself the authority possessed by Moses as legislator of the people. He further declared to the assembled multitude, that it was the will of God, that John Boccold should be king of Zion, and sit on the throne of David. Accepting this heavenly calling, which he pretended to have received by a special revelation, he was immediately acknowledged as monarch by the deluded multitude, and assumed all the flate and pomp of royalty. He wore a crown of gold, and was clad in the most sumptuous garments. A Bible was carried by him in one hand, and a sword in the other; he appeared in public attended by a body of guards, coinced money with his own image, and appointed the great officers of his household and kingdom, among whom Chipperdorling was nominated governor of the city, as a recompence for his former submission. As the exults of enthusiasm have usually led to culutral gratifications, Boccold instructed his prophets and teachers to inculcate the lawful% of a plurality of wives, as one of the privileges granted by God to his saints; and he himself fet the example of this Christian liberty, as he called it, by marryng at once three wives, one of whom was the beautiful widow of Matthias. He proceeded with augmenting the number of his wives to fourteen, restricting however the title of queen to Matthias's widow, and allowing no other to have with him the splendour and ornaments of royalty. The multitude availing themselves of this example indulged their desires to the most licentious and extravagant excess; and polygamy and freedom of divorce universally prevailed. The bishop of Munster, in the mean while, aided by the German princes, prelled closer the blockade of the town into which the siege had been converted; but its fortifications were so strong and so diligently guarded, that they durst not attempt an assault. But no succours arrived to the besieged; and after a close blockade of about fifteen months, they began to feel and lament the effects of scarcity. However, such was the demoralizing influence of Boccold's promises and predictions, that no one seemed inclined, or at least possessed resolution enough to propose a surrender. One of his wives intented a small doubt of his divine mission, was summoned before him as a blasphemer, and commanding her to kneel, he cut off her head with his own hands; his frantic followers at the same time dancing with joy round the bleeding body of their companion. Notwithstanding all the horrors of famine, the people of Munster still refused to capitulate. At length, however, a defterer made his escape to the enemy; and offered to head a party of the besiegers, under cover of the night, to a weak part of the fortifications, and left vigilantly guarded than any other. The proposal was accepted; and the party seized the walls, feized one of the gates, and admitted the roye of the army. A dreadful carnage ensued; the king and Chipperdorling were taken prisoners. The former, loaded with chains, was carried about from city to city, as a spectacle to the people; but notwithstanding all their insults, he maintained a firm and unridden spirit; and adhered inflexibly to the tenets of his sect. He was afterwards brought back to Munster, and suffered the most exquisite as well as lingering tortures of death with astonishing fortitude; thus fulfilling an extraordinary course of delusion, at the age of 26 years. Kayle, Art. Anabaptists. Robertson's Hist. of Ch, V. vol iii, p. 296 &c. Mofheim's Eccl. Hist. vol iv. p. 452, &c.

BOCONE, Paolo, or Paul, an ingenious naturalist, was born at Palermo, in Sicily, April 24th 1653. He was a man of a wealthy and respectable family, or rather, by birth, from Savona in Genoa. To improve himself in natural history, particularly in botany, to which he was early attached, he travelled over Sicily, Coties, Malta, many parts of Germany, Holland, and England, conversing with the most eminent literary characters in the places he visited, with whom he afterwards kept up a communication. In the course of his travels, he was admitted doctor in medicine at Padua, was elected member of the Academy, Nature Curios. and made botanist to the grand duke of Tuscany. In 1682. he entered among the Cistercian monks at Florence, and with the habit of the order took the name of Sylvio, which he adhered to his latter works, but he was still permitted to continue his researches in natural history. Returning at length to Sicily, he retired to one of the houses of the Cistercians near Palermo, where he died, Dec. 22nd 1704. As he had been indefatigable in his researches, his collection of plants and other natural productions was very considerable. S librarian, who saw his hortus focus or specimens of dried plants, in 1697, was so struck with their number and beauty, that he engaged him to give a catalogue of them to the public, which he did in his "Museo plantarum rare," published at Venice in 4to. the same year. The catalogue was also published by itself. Several of his works appear to have been pirated while he was on his travels. The first of them, "De abstrato mare notum," in 1698; and in the same year, "Manifescum botanicum, de plants Sicilis," Catania, 4to. By an advertise- ment at the beginning of the work he offers to hotmills the seeds of many of the curious and rare plants he had collected at moderate prices. Marrion published an edition of this work at Oxford in 1674, 4to. under the title of "Historia plantarum in plantarum Sicile, Malta, Gallie, et Italia." Many of the plants, Haller says, were new. The figures are small, and in general not well delineated or engraved. His next production was "Recherches et observations naturelles," published at Paris in 1675.
Ameliam Jollh. called, contentphono and was Botany, to is its Notes June, bed Gen i6mo. replied, filicule for, "the green The he alternate, In See good Paleftine was brafted Boccoma which The lie Vazioni carp, ©f pears globular, P'ifl. flower, JufT. of two-valved. willd." BCCONIA, boconia, botany. Is of popular genus Car. of Pericarp, capulce, filamentous, reflex. Pericarp. capulce fib. vate, attenuated to each end, compressed, one celled, two-valved. Vitalus coruscus, ojering at the bafe; the annular petaled with the permanent style. Seed one, globular, involved in pulp at its bafe, fixed to the bottom of the capulce. Obfem. The capulce refembles a filicule in its general shape, and in the permanent future terminated by the style.

Species. 1. Bocconia frutescens, shrubby boconia tree, celandine, or parrot-weed. "Leaves oblong, finnate. Wild." An ornamental shrub, 10 or 12 feet high, with a straight, hollow trunk filled with pith, covered with a smooth, white bark, and divided near its summit into several cylindrical branches. It abounds in all its parts with a thick, yellowish juice, similar to that of celandine. Leaves fix or even inches long, and about three broad; alternate, oblong, fimbriated; a little finnate, with oval, unequally toothed segments; green and smooth above, glaucous, and a little tomentofe beneath; on short petioles; flowers small, greenish, numerous, in large pyramidal, terminating panicles; bractes lanceolate.

It is a native of Mexico and the West Indies, where its acid juice is used to take off tetter and warts, and is also said to be employed in dyeing yellow. It has an evident affinity with the celandines in its tenable qualities and two-leaved daudous calyx, but differs remarkably from them in its incomplete flowers and monospermous fruit. La Mark conjectures that its want of a corolla is owing to the change of its natural petals into flaments: for, he observes, after the fall of the true flaments, four are conflantly left, which continue as long as the calyx. See La Mark. Encyc.

The shrubby boconia was first cultivated in England by Mr. Miller in 1739, and has flowered and ripened its seeds, in the phylae garden at Chelsea. It is propagated by seeds, which should be sown in a pot filled with light fresh earth, early in the spring, and then plunged into a bed of tanner's bark, and occasionally watered. When the plants are come up, they should be transplanted into separate pots filled with light sandy earth, plunged in the hot bed, and shaded from the sun in the heat of the day, till they have taken root: at first they should be sparingly watered, but when their stems are become woody, they will require a larger supply. In about two months, they should be transplanted into larger pots, and plunged again into the bark. In warm weather they should have a good share of fresh air, but should never be taken out of the house.

B. cordata. 'Leaves cordate, a little lobed.' A native of China. Panicule elongated, with single, not divided, branches. Calyx white. as in the preceding species, but larger. Stamens about 24. Style none. Stigma bilamellated, fimbriate. Wildenow, by whom it was first described, as it should seem, from a dried specimen.

BOCCORE, in Natural History, Parii. q. d. first and early fruit, a name given in the kingdoms of Algiers and Tunis, and also in Palestine, to the early fig, which was produced in June, in Palestine, though the kermes, or kermeuse, the fig properly so called, which they preserved and made up into cakes, was rarely ripe before August, and sometimes hung upon the trees all the winter. These latter figs continued a long time upon the tree before they fell off; whereas the bocones dropped as soon as they were ripe, and, according to the appropriate and beautiful allusion of the prophet Nahum. (iii. 12.) fell into the mouth of the eater, upon being shaken. We learn from Tiny (N. H. l. xvi. c. 26.) that the fig-tree was biferia, or bore two crops of figs, viz. the bocones, as we may imagine, and kermes: and it is well known that the fruit of these prolific trees always precedes the leaves; consequently, when our Saviour gave one of them, in full vigour, having leaves (Mark xi. 13.) he might, according to the common course of nature, very justly look for fruit, and could find some bocones, if not some winter-figs likewise upon it. The time of the year in which the event referred to in this passage occurred, was undoubtedly three or four days before the passover, at which our Saviour was crucified, and the passover in that year fell in the beginning of April. But it has been inquired, how Christ could expect to find ripe figs on the tree at the latter end of March? to which it is replied, because figs were ripe to soon in Judaea. It has been satisfactorily proved, that the harvest in Judæa began at the passover, and ended at pentecost; and as the barley in Judæa was ripe in March, and the wheat in April, we need not wonder, if there were ripe figs in the beginning of April too, or before the time of the passover. This, indeed, was the usual time for the first ripe figs; and therefore it was natural to expect that there should be figs at this season, more especially as the tree had leaves, before which the fruit came forth; and as the "time of figs" as bishop Kidder has shown, the time of gathering in ripe figs, was not yet come. When St Mark says, 'for the time of figs was not yet,' he does not design to give a reason of what he said in the immediately foregoing clause, viz. 'he found nothing but leaves,' but he gives a reason of what he said in the clause before that, viz. 'he came, if he found anything, he might find anything thereon.' And it was a good reason for our Saviour's coming and seeking figs on the tree, because the time of gathering them was not yet come. The translation above haplophore, is not uncommon. See Mark. vi. 34. Gen. xiii. 10. John. xxii. 22. See Hallilat's Notes on Texts of Scripture, vol. ii. p. 115, &c. Harmer's Observ. vol. i.

BOCH, John, in Biography, a modern Latin poet and classical scholar, was born at Bruchels in 1555; and having entered
entered into the service of cardinal Radziej, accompanied him to Rome, and there studied theology under Bellarmín. He afterwards travelled into Poland, Livonia, and Ruffia, and was in danger of losing his feet by the frost in his journey to Moscov. Upon his return to the Low Countries, the duke of Parma appointed him secretary to the town-house of Antwerp. He died in 1609. His poetical works, consisting of epigrams, elegies, heroic poems, &c. were collected, and printed at Cologne in 1615. He has lived highly esteemed as a Latin poet by the critics of his country, and called the "Bolyk Virgil." Gen. Dict. Boem., in Geography, a river of the Netherlands which runs into the Meuse, 5 miles below Dinant.

BOCHARIA. See Bucharia.

BOCHART, Samuel, in Biography, a learned orientalist, was the son of a minister of the reformed church at Roven, where he was born in 1599. Having studied polite literature at Paris, philosophy at Sedan, and divinity, with the oriental languages, at Saumur, and made a surprising progress at a very early age, he completed his course of oriental literature under Erpenius and Ludolf at Leyden. On his return to France, he settled as minister at Caen. In 1646, he published his "Phaeg" and "Canaan," the two parts of his "Geographia Sacra," a work of very extraordinary erudition and research, in which he investigates the history or the human race as recorded in the Bible, the difference of mankind, and the origin of nations and languages, together with a variety of collateral subjects. Notwithstanding the charge of fanciful interpretations and chimeraical conjectures, which has been alleged against some parts of this work, it has long maintained a high degree of reputation, and furnished an ample supply of materials for modern writers. In the progress of this work, the author was led to pursue a variety of inquiries concerning the animals, vegetables, and minerals mentioned in the sacred writings, on which he intended to have composed distinct treatises; but he only completed that relating to animals, which was printed at London in 1663, under the title of "Historico." In this work the errors are such as must unavoidably occur at a period when the knowledge of natural history was very imperfect, compared with that of more modern times. In compliance with the invitation of queen Christina, Bochart visited Sweden in 1652, accompanied by the learned Huet, who wrote an honourable and elegant Latin poem on their journey. But finding that the capricious levity of the Swedish queen was not suited to his own grave character, he returned to France in 1653, and resumed his former studies. He was a member of the Academy at Caen, and, by his moderation and candour, maintained the distinguished reputation which he acquired by his profound erudition, together with the esteem and respect of persons of all parties, till the time of his death, which happened in consequence of a apoplectic stroke, during a disputation with Huet in the academy, May 16, 1667. Besides the learned works already mentioned, Bochart left several dissertations, particularly one, in which he attempts to prove that Æneas never was in Italy. His works were collected and printed by M. de Villedamond at Leyden in 1712, in 3 vols. folio. Gen. Dict. BOCHO, in Geography, a town of Germany, in the circle of Upper Saxony, and principality of Querfurt, 3 miles S.E. of Juttorbeck.

BOCHOLNICEZ, a town of Poland, in the palatinate of Sandomierz, 29 miles E.S.E. of Radom.

BOCHOLT, or Bockolt, a town of Germany, in a prefecture of the same name, in the bishopric of Münster, and circle of Westphalia; seated on the Aa, and having iron mines in its vicinity; 36 miles W.S.W. of Munster.

BOCHOLT, or Bockolt, a town of Flanders, situate on a canal cut from the Schelde; 4 miles N.W. of Sa-de-Gent.

BOCK, Blauer Bock, in Zoology, a synonymous name of the blue antelope, antelope cervicapra. Kolbe.—Bock also signifies the male of the common goat. Gen. Thier.

BOCKA, or Bockau, in Geography, a mine town of Germany, in the circle of Upper Saxony, and country of Erzgebirg, 3 miles W. of Schwartzenburg.

BOCKENBURG, a town of Germany, in the circle of Westphalia, and bishopric of Minden, one mile from Minden.

BOCKENHEIM, a town of Germany, in the circle of the Upper Rhine, and county of Hanau-Münzenberg; 2 miles W. N.W. of Frankfurt on the Main.

BOCK HORD, or Book-Hoard, in Antiquity, a place where books, evidences, or writings were kept.

BOCKHORST, John Van, in Biography, a painter of history and portrait of the Flemish school, was born at Munster, about the year 1610; and removing to Flanders, acquired the art of design and colouring in the school of Jacques Jordana. He designed well; the heads of his women are generally graceful, and those of his men distinguished by character; his tone of colouring sometimes resembles that of Rubens, but more frequently that of Vandyck. His pictures have great force and harmony; and his skillful management of the chiaro-afuro produces an agreeable effect. An altar piece at the church of St. James in Ghent, representing the martyrdom of this saint, and a picture of the Annunciation in another church, painted in 1664, are distinguished performances of this master. Defamps. Filiation.

BOCKI, in Geography, a small town of Poland, in Podlachia, in the palatinate of Bilek.

BOCKING. See Brainstree.

Bocking herring, in the Dutch Trade, signifies the fame with bloated herring among us.

BOCK-KOCO, in Geography, a vast peak of the Brunner mountains in the Tyrol, rising little inferior to Geirorn, and in the same latitude, but towards the west.

BOCK-LAND, or Book-Land, formerly denoted that which we now call Feeling-land, or Charter-land; and it was by that name distinguished from Folk-land, which was Copyhold land. In Ancient Law-Writers, it denotes a possession or inheritance held by evidence in writing. The word was doubtless written book-land, quasi book-land, answer- ing to free-land, or land held by book or charter, which was regarded as free property, and descended to the heirs of the poelfeir. It flood opposed to Folk-land, which was held without writing.

BOCKUM, Boshum, or Bochum, in Geography, a town and prefecture of Germany, in the circle of Westphalia, and county of Mark; seated in a very fertile district, 24 miles N. E. of Düsseldorf, and 35 N. of Cologn.

BOCNA, a town of Poland, in the palatinate of Cracow, famous for its salt-mines, first discovered in 1531. The small river called Raoa, that falls into the Vitula, runs near this town, which is surrounded with hills and cairnices. The salt-mine of Bocnia is in a narrow slip of land, about 1750 feet in breadth from north to south, and about 10000 feet in length from east to west, and its greatest depth below the surface is about 1200 feet. The salt lies in veins, and is somewhat finer, especially at a certain depth, than that of Wieliczka. It is cut in small pieces, and put up in casks. Large pieces of black wood have been found in this mine, which are incrustated with salt; and likewise alab.
Bonter. The mines, which are very dry, are under the direction of the magistrates of Wieliczka. The town is 20 miles E. of Cracow.

BODZOW, a small town of Lithuanian Russia, in the diocese of Polock.

BODEUS A. Stapel, John, in Biography, was born at Amsterdam the beginning of the 17th century, where, at a proper age, he was admitted doctor in medicine, but attached himself particularly to botany, in which he acquired considerable celebrity. He died in 1636, at an early age, leaving a work, on which he appeared to have bestowed much labour, prepared for the press, which was published two years after, viz. Joannes Bodeus, a Stapel, in Theophrastus Historiam Plantarum, fol. Amtl. 1644. Eloy's Dict. Hist. Med.

BODAIKA, in Geography, a town of Hungary, 7 miles W. of Patak.

BODDAERTI, in Ichthyology, a name given to a species of Caritodes. This has the body variegated with brown and blue bands, and the ventral fins armed with two spines. Schr. der. berl. naturf. Gmel. The habitat of this fish is unknown.

BODAERTI, a species of Gobius, found in the Indian ocean. Pallas describes it specifically as having the rays of the anterior dorsal fin circleform, and the third ray very long. This fish is fixed inches in length; the body bluish brown, pale and yellow behind, of a convex shape, tapering in a slight degree towards the tail, and covered with small fin scales. The head is thick, blunt, somewhat convex, and spotted with brown and white. Jews nearly equal. Lips thick and fleshy; eyes vertical. Lateral line with scarcely perceivable papillae, and a few snowly white spots. Each side of the back marked with seven brown spots, and on the sides below three as many dots of white. Vent near the head than the tail; surrounded by a black circle, with a conic peduncle behind. Dorsal fins, blueish black the anterior ones spotted with white, the other with fucate rays, and fix transverse white lines between each ray. Pectoral fin rounded. Tail blueish white. In the first dorsal five fins, in the second twenty-five; pectoral twenty-one; ventral thirty-four; anal twenty-five; caudal eighteen. Pallas. Gmel. &c.

BODECKEN, in Geography, a town of Germany, in the circle of Weilphalia, and bishopric of Paderborn, 4 miles N. N. E. of Euren.

BODEGAS, a town of North America, in the province of Veraz, on the north-east coast of Dolce-bay. N. lat. 15° 40'. W. long. 70° 35'.

BODEGENET, a town of France, the principal place of a canton, in the district of Huy, and department of Orthe; the place contains 320, and the canton 7422 persons; the territory comprehends 1075 kilometres, and 17 communes.

BODEGON, a town of Spain, in Andalusia, 6 leagues from Seville.

BODEKER, in Biography, a painter of portraits, was born in the province of Cleves, in 1650, and abandoning the profession of mufic, for which his father intended him, he was placed as a disciple, in the art of painting, under John de Baan at the Hague. He commenced the exercise of his profession at Poitou-Duc and Brede with great reputation; and having resided some time at the Hague, he closed his life in 1727, at Amsterdam, where his performances were much esteemed. Pikington.

BODENBURG, in Geography, a town of Germany, in the circle of Lower Saxony, and bishopric of Hildesheim; 8 miles N. E. of Alfeld.

BODENETZ, a town of Bohemia, in the circle of Crudim; 10 miles N. of Crudim.

BODENFELDE, a town of Germany, in the circle of Lower Saxony, and principality of Calenberg, seated on the Wefer in the quarter of Gottingen.

BODENHAUSEN, a town of Germany, in the circle of the Upper Rhine, and principality of Hesse; 18 miles N. E. of Caffel.

BODEN, in Antoniet Geography, a people of European Sarmatia, according to Ptolemy.

BODENLEICH, in Geography, a town of Germany in the circle of Lower Saxony, and principality of Luneburg-Zell; 32 miles N. E. of Zell.

BODEN SEA, a name sometimes given to the gulf of Bothnia, which fee.

BODENSTEIN, Adam, in Biography, a celebrated German physician, son of a famous theologian, called from the place of his residence, Carolstadt, was born there in 1528. He was a pupil, and fervenous defender of the doctrines of Paracelsus, in which he appears to have placed an entire confidence. For a malignant fever raging at Bale, in 1577, he went there, armed with a Theriaea, composed on the principles of his master, with which he boasted he should be able to subdue the fever; but taking the infection, he fell a sacrifice to his credulity and temerity. Besides editing several of the works of Paracelsus, he left the following, which were collected and published in one volume folio, at Bale, in 1581.

... Epitola ad Fuggeros, in qua Argumenta Alchymiam inulmenta, et controversy adducitur; quibus et artem esse veritatem demonstratur; lactique vero inventus ofdendi... “De Podagra praeventione, tracialius.” De herbis duodecim zodiaci figuris, dicatis, &c.” Adamus records his epitaph, placed on his monument, he says, at his own desire, in which he is laid to have died, anno Salutis, 1577, aetatis hebdomada septima, for seven times seven, or 49 years. Also the following lines, in which Bodenlein is supposed to say:

“Ne omnia, nec omnes meli.
Pleurece; quinam ego omnibus?
Non omnibus corfenex,
Non eremita spapigrus.
Nam tu viator omnibus?
Dec placere cura. Abi.”


BODENWERDER, in Geography, a town of Germany, in the circle of Lower Saxony, and principality of Calenberg, seated on the Wefer; 16 miles S. of Hameln. It has some trade with Bremen and Hamburgh in coarse linen.

BODEN-ZEE, a name given by the Germans to the superior lake of Collinc, which fee.

BODERIA, or Bodoria, in Antoniet Geography, an illustrious mented by Ptolemy in his description of Great Britain, which is the present Firth of Forth in Scotland.

BODET point, in Geography, lies on the north shore of Lake St. Francis, near the boundary line between Upper and Lower Canada. Bodet River runs into Lake St. Francis, E. of Boded point.

BOGUVA, a town of Asiatic Turkey, in the province of Nataki, 25 miles N. W. of Kaffanoni.

BODIANUS, or Bidianus, in Antoniet Geography, a borough of Italy, which was repeased by a decree of Julius Cesar.

BODIANUS, Bodian, in Ichthyology, a genus of Thoracia fishes, first established by Dr. Bloch, for the reception of such species of the two Linnaean genera Sparus and Perca, as have certain characters common to both, and are not therefore sufficiently distinct to be divided into two genera. The character of this new genus, as laid down in the first instance, consists in having the gill covers scaly, armed, and...
smooth, or even, at the edges. Under this head Dr. Bloch

describes ten species only, namely, Bodianus bodianus, bo-
dianus guttatus, bodianus pectoralis, bodianus bennii, bod-
dianus aur, bodianus maculatus, bodianus apus, bodianus
megaloplatys, bodianus flustris, and bodianus argentus.

Lacèpede, in adopting the genus Bodianus, considerably
augments the number of its species by the addition of others
not previously described under either of the Limnanth genera.

In his "Histoire Naturelle des Poissons," there are altogether
no less than four and twenty species. The generic character
is modified, and two sections formed to admit them. Its
efficient character is thus expressed: one or more spines to
the gill covers, the margins of which are neither dentecu-
lated, nor jagged; only a little beard, or sometimes none to
the jaws; and a single dorsal fin.

The first section of the Bodians include those which have
the caudal fin furcated in the form of a crescent, of which
there are fourteen kinds: Le bodian aquatic (bodianus pector-
alis), le bodian bennii, le bodian jaguar (bodianus pecten-
anthus) le bodian maculatus, le bodian argentus, le bodian
bennii (bodianus bennii), le bodian aur, le bodian tacheté, le
bodian vivanct, le bodian Ficher, le bodian décancanthe, le
bodian bujian, le bodian groffe tête, and le bodian cycclomme.

In the second division, the species which have the tail fin
entire, Lacèpede describes only ten, le bodian roga, le bodian
lunaria, le bodian melanoenque, le bodian Jacob, Evertlen, le
bodian bennii, le bodian bennii, le bodian apas, le bodian
tétacanthe, le bodian bennii, and le bodian six races.

The genus Bodianus is recognised, and admitted by Dr.
Shaw into the general zoology. He includes in this tribe
precisely the same species as those described by Dr. Bloch,
with five additional species described by Lacèpede as Bodi-
anus, namely, porca bennii, Gmel. Saperis pectoralis, Gmel.
porca roga, Gmel. porca lunaria, Gmel. and bodianus
melanoenque of Lacèpede. But the generic character of
the Bodianus, as given by this author, is evidently at vari-
nance with that alligned to it by others. The great object
of the leithyologist, in establishing the new genus Bodianus,
must have been to separate from the two genera perca and
Saperis, such species as do not strictly belong to either; and
unless this could be accomplished in a satisfactory manner, it
would be better to permit them to remain under Limnæus
placed them. By some usual oversight Dr. Shaw appears to
have failed in this respect; his bodiani are not sufficiently
distinguished from the Limnanth porca, as the following ge-
neric character will show: "Habit of the genus porca. Gill
covers feaily, ferrated and acamlicated. Scales (in molt species)
smooth. The gill covers of the porca, according to this
writer, are acamlicated ferrated and the scales of the body (in
molt species) hard and rough. According to this definition;
perca with smooth scales, and the denticulations of the gill
covers conspicuously large, may be mistaken for a bodian; and
a hard scaled bodian, on the contrary, for a perca. If
we are to allow an innovation on the Limnæan arrangement
by the inference of the genus bodianus, its true character
seems to be that the plates which constitute the gill-covers are
smooth at the edges, and only armed with one or more
distinct spines; while the ferrated edges of those plates as
plainly point out the perca: and if the plates be both fer-
rated and acamolated, the converse is highly proper to retain
them under the old limnanth genus porca.

BODIN, JOHNS, in Biographia, a famous lawyer of France,
was born at Angers in 1536; he studied the law at Toulouse,
and preferring the common to the civil law, quitted Toulouse
and entered at the bar in Paris; but not succeeding to his
expectations, he devoted himself to literature. He com-

Original: Latin verse of "Oppian's Cynegestion," 7r books of hunt-
ing, accompanied with learned notes, claimed as his own by
Turnebeus. His "Method of History," was published in 1566,
and his "Discourse on Coins," with an answer to the paradoxes
of Malfretot in 1568; but these were introductory to his great
work in French, "Concerning a Republic," printed in 1576, in
folio, and frequently reprinted in Svo. To this work the president
Thotius bears very honourable testimony; it was also much commended by other persons
of learning; and obtained for the author a high degree of
reputation throughout Europe. It became the text-book
of private lectures both at London and Cambridge. His
tables of law, entitled "Juris Universi Distributio," were
printed in 1576, and in the following year his "Demon-
manie des Serciers," to which was annexed "A Refutation
of the book, de Lamini," of John Wier, physitian to the
duke of Cleves, who had undertaken to prove that the
flowers of witchcraft and forresey have chiefly arisen from
impudence or delusions of fancy. The literary character of
Bodin, who defended this kind of superstition, incurred re-
proach, and he himself was shipwreck of being a magician.
Before this time he had been invited by Henry III. to his
court, who was much delighted with his conversation and
advised him with attention and respect. But the royal fa-
vour was of no long continuance; for Bodin, who held an
office in the prefidial court of Laon, was sent, in 1576, as a
deputy of the third cilee of Vermandois, to the Assembly
of the Provinces; where he remonstrated against the
project of alienating the royal demesnes belonging to
that province; and this he did with such effect, that Thun-
anus principally ascribed the defeat of the injurious scheme
of alienation to his conduct on this occasion. Bodin also re-
olutely opposed the party of the Guifes, who were endeav-
ouring to procure a decree for compelling all the king's
subjects to profess the catholic religion. By such measures
he became obnoxious at court; and he, therefore, accepted
a proposal made to him by the king's brother, the duke of
Anjou and Anjou, to accompany him to his government
of the United Provinces. He afterwards attended him to
England, and, it is said, that he advised the seizure of Anto-
werp, in consequence of which the duke lost both credit
and influence. After the death of his patron, Bodin re-
turned to Laon, and discharged the office of chief magistrate
with great integrity. In this city he died of the plague in
1596. A work, written by him but never printed, and en-
titled "Heptaplomeron, five de abditis rerum sublimitum
areana," is said to have been an attack upon religion, and
deigned to invalidate the authority of revelation. By the
seeming advantages which he gave in this work to the Jewish
religion, he was suspected of being a convert to it; but it is
more probable, that he was a lepetic with regard to religion,
and alike indifferent to all modes of faith. A little while
before his death he published a Latin treatise, entitled
"Theatrum Universae Naturae," in which he purifies the
causes and effects of things to their principles. Bodin is
an ardent and inquisitive thinker; and his condition was

BOOLEY, Sir Thomas, was born at Exeter in 1544
and at 12 years of age removed with his father to Geneva,
where with his family thither to avoid the persecution of
Queen Mary's reign. In the University of the city he commenced
his studies; and when his father returned to England, on
the accession of Queen Elizabeth, he was sent to Magdalen College,
Oxford, where he remained for some years, and be-
came fellow of Merton College. Here he read lectures in
Greek and philosophy, and officiated as proctor and public
orator. In 1576 he went abroad for improvement, and
spent...
spent four years in his travels. In 1583 he was made gentleman-sitter to the queen; and having married, he entered into public life, and was employed in various foreign embassies. At the Hague, where he resided several years, his chief business was the negotiation of money-concerns between the States and queen Elizabeth. After his final return to England, in 1597, he found that his further advancement was obstructed by the intrigues and jealousies of persons in power, and he therefore formed a fixed purpose of retiring from all public affairs, devoting the remainder of his life to the laudable employment of refounding the university library at Oxford, furnishing it with books, and enlarging the building. See Library. At the accession of king James, Mr. Bodley received the honour of knighthood. He died in 1612, and was buried in Merton college choir. An annual oration is still spoken in his praise. Biogr. Brit.

Bodley, John, who practised physic in London, in the beginning of the last century, published, in 1741, a critical essay on the works of various authors, particularly on those treating on medicine, with the view of shewing that neither those physicians who wrote the most correct and valuable treatises on medicine, nor those who were the most intelligent practitioners, were usually the most encouraged; fame and success being more commonly the appendages of craft and policy, than of skill and judgment. A similar opinion was held by the late Dr. Samuel Johnson, who thought a judicious history of the fate of physicians might prove both an entertaining and useful work. Something of this kind was done by Pehrus, in his book "De Literatorum Infelicitate," but on a larger scale, embracing the whole community of letters. Elov. Dict. Hist.

Bodinocomacum, in Ancient Geography, the name of a borough of Italy in Liguria, where, according to Pliny, the river Eridanus was at its greatest depth; called in his time "Industria."

Bodiontici, a people whom, according to Pliny, Galba annexed to Gallia Narbonensis; but before this time they formed a part of the Ligurians. M. D'Anville has placed them in the maritime Alps. Their capital was Dinia.

Bodkil, in Geography, one of the channels between Flanders and Walcheren island, in Zealand, by which great ships may fail in.

Bodmer, in Biography, a celebrated professor and writer of Swissland, was born at Zurich in 1568; and became professor of Helvetic history and politics in his native place. In this office he taught his pupils to think for themselves, and to make such observations on historical facts as might render them intimately acquainted with the human heart. He wrote the history of his own country in the form of dramatic dialogues. Although he became one of the most voluminous of the German poets, and contributed in a great degree to reform the taste of his contemporaries, and to familiarize them to the sublime beauties of Homer and Milton, he had carelessly written a verse in the German language before he was 50 years of age, when the first canto of Klopotock's Melish fell into his hands, and excite his emulation. His first essays were in epic poetry, the subjuncts of which he took from the Scriptures, but he afterwards devoted his muse to other topics; and it is observable, that old age, which generally increases austerity of manners, had the contrary effect on Bodmer; insomuch that his last pieces were the most gay, and that when he was 80 years old, he frequently amused himself with Tibullus and Petronius, and also with Boccace and la Fontaine. At the age of 77, he began a translation of Homer's Iliad and Odyssey, which he finished; he was 86, also, when he published his version of the Argonautics of Apollonius Rhodus. He died in 1783, at the age of 85 years. Bodmer has been deservedly styled by the unanimous voice of his contemporaries, "the father of German literature," whose just criticism and correct judgment animated the poetical genius of Klopotock, Haller, and Goecke. Bildnisse, &c. or Portraits of celebrated German Literati, &c. Rome, 1793.

Bodmin, in Geography, an ancient borough and market town of Cornwall, England, is seated near the eastern borders of the county, on the confines of Devonshire. This town appears to have been formerly the principal seat of religion in the western district, and contained a priory, a collegiate church, and, according to Hals, thirteen other churches, or free chapels. The remains and foundations of some of their religious structures still exist; and the sites of others are remembered by the old inhabitants. Among these were the priory with its chapel, &c. St. Peter's church, St. Paul's church, on the northern side of the town, of which a solitary square tower remains; St. Nicholas, or the friary. The present town-hall and felion house occupy the site, and are confluted with parts of the latter building. The first religious foundation of Bodmin was removed to it from Padstow, a town on the northern coast of the county, which being much infested by the Saxons and Danes, was the retreat of the monks for greater protection and safety. Here they established the priory and its various dependent buildings; all of which gradually decayed after the removal of the foe. The town occupies the northern face of a hill, and consists principally of one long street stretching east and west. Near the eastern end of it is the parish church, a large ancient structure, consisting of three ales, and a tower which is attached to the north side. The chancel part is certainly the most ancient, and was formerly connected with the priory-building. An old chapel, now appropriated to a school-room, still remains near the east end of the church, and a little further east is a neat modern manison, occupying the site of the domestic part of the priory. A monument richly and curiously sculptured, of one of the priors of this house, is carefully preserved in the chancel. This was made to commemorate the name and official character of Thomas Vivian, who was bishop of Megara, and died in 1533.

Bodmin is distinguished among the numerous boroughs of Cornwall, as being the only one free from the control of a patron. It was first made a borough in the time of Henry II. and its privileges were afterwards confirmed by king James I who incorporated it in the 15th year of his reign. In 1799, a new charter was obtained, which vested the government in a town clerk, twelve aldermen, and twenty-four common council-men, who hold the sole privilege of electing two members for parliament. About half a mile N.W. of the town is a regular, commodious county gaol, which was begun building in 1779, from designs by Sir John Call, who planned it according to the system recommended by the philanthropic Howard.

Bodmin gave birth to Dr. Richard Lower, an ingenious physician and anatomist, who made various experiments on the transfusion of blood from one animal into another. This town has a market on Saturday, is 235 miles south west from London, and contains 278 houses, and 1951 inhabitants.

Bodobrica, in Ancient Geography. See Baundricum.

Bododo, in Geography, a town of Africa, in the kingdom of Benin, containing about 50 houses, or little cabins, built of reeds and covered with leaves. Here a viceroy has his residence, attended by a council, whose jurisdiction extends over this canto-in all civil affairs, levying taxes, and rating duties and fees on merchandise. In criminal cases of
of great importance, the viceroy and council are obliged
tend to Beinan the capital, for the orders of the court.

BODOK, a district of Lower Hungary, in the province of
Nitra, containing 101 large villages.

BODOK. See WIFI.

BODROG, a district of Hungary, near the Danube, 30
miles S. E. of Colozsa, inhabited by Roumans and a few
Hungarians. Also a River of Upper Hungary, which has
its source in the Carpathian mountains, and discharges itself
into the Theiss near Tokay.

BODTY, in Zoology, the name of a certain kind of
American snake, supposed to be of the amphihiema tribe, bat
of which this species is apparently doubtful. The same
snake is likewise called Bijaara.

BODUNGEK, Great, in Geography, a market town in
Germany in the circle of Upper Saxony, and county of Klet-
tenberg, 5 miles north of Bleicherode. Little Bodungen lies
in the bailiwick of Lora, 4 miles north of Bleicherode.

BODWELL'S FALLS, lie in Merrimack river, between
Andover and Methuen, in North America, about 5 miles
below Patucket falls.

BODY, in Physics, a solid, extended, palpable substance;
of itself merely passive, and indifferent either to motion or
rest; but capable of any sort of motion, and of all figures
and forms.

The word alludes to the Saxon bodice, flature; and to
the Belgoic bodis, a cover, q. d. the tabernacle of the soul.
Body is composed, according to the Peripatetics, of matter,
form, and privation; according to the Epicureans and Cor-
piculicators, of an affemblage of hooked, heavy atoms; ac-
cording to the Catenians, of a certain quantity of extension;
accoring to the Newtonians, of a system or association of
solfid, hard, imperceptible, moveable particles, ranged or
dispersed in this or that manner; whence refults bodies of
this or that form, distinguished by this or that name. These
elementary or component particles of bodies must be infinitely
hard; vastly harder than the bodies compounded of them;
may, to hard as never to wear, or break in pieces. "This
for Isaac Newton observes, "is necessary in order to the
world's persisting in the same flate, and bodies continuing
of the same nature and texture in several ages."

Body, affections of. See AFFECTION.

Body, colours of. See COLOUR.

Body, elements of. See ELEMENT.

Body, effence of. See ESSENCE.

Body, existence of. See EXISTENCE.

Body, extension of. See EXTENSION.

Body, modes of. See MODE.

Body, motion of. See MOTION.

Body, qualities of. See QUALITY.

Body, solidity of. See SOLIDITY.

Body, fluid, that whole particles cohere, or are some way
connected with each other. See SOLID.

Body, fluid, that whole particles easily slide over each
other, and are of a fit size to be agitated by heat; or that
whole particles do not cohere, but are easily put in motion
by the inalst force. See FLUID.

Body, rough, that whole surface is beted alternately with
eminences and cavities, in contradistinction from a smooth
body.

Bodies, disfable, those which being stretched do not break,
but extend one way as much as they shrink another. Some
of these are hard and malleable, as metals; others soft or
viscid, as glue, gums, &c. Mem. Acad. Seien. an. 1713.
p. 268.

Bodies, flexible, those which admit of being bent without
breaking: such are thread, wire, fibre, and even glass, when
spun very fine. These are contradistinguished from brittle
bodies.

Bodies, specific gravity of. See GRAVITY, and Weight.

Body, dense. See DENSITY.

Body, rare. See RARE.

Body, luminous, or lucid, that which emits its own rays, or
shines by its own light.

Body, illuminated, that which diffuses the light of another
by reflection, or which shines by borrowed light.

Body, opaque, that which intercepts the rays of light, or
prevents their passage through it.

Body, transparent, diaphanous, or perilucid, that which tran-
smits the rays of light. See TRANSPARENCY.

Body, the inertia of. See VIS INERTIA.

Bodies, homogeneous. See HOMOGENEOUS.

Bodies, congruous, those whole particles have the same
magnitude and velocity, or at least harmonical proportions
of magnitude and velocity.

Bodies, incongruous, those which have neither the same
magnitude, nor the same degree of velocity, nor an harmonic
proportion of magnitude and velocity.

Body, hard. See HARD.

Body, volatile, that which rises by the force of heat. See
VOLATILE.

Bodies are divided into animate and inanimate; i. e. into
those informed by a soul, and those which are not; or those
that have life and those that have none.

Some confer bodies, either as natural and sensible; viz., as
formed by physical causes, and clothed by physical qual-
ties (in which sense, body makes the object of physics); or,
hat intellectual or quantitative, in the general or abstract;
and according to three dimensions: in which sense, body makes
the subject of geometry.

Bodies alkaline, coaliferous, elastic, fixed, heterogeneons, atmo-
sphere of, defect of, mercury of. See the several articles.

Body, with regard to animals, is used in opposition to
soul; viz. for that part of an animal, composed of bones,
muscles, canals, juices, nerves, &c. concerned in digestion,
circulation, &c.

In which sense, body makes the subject of comparative
anatomy. See ANATOMY.

Body, faculties of the. See FACULTY.

Body is also applied by anatomists to several particular
parts of the animal fabric.—As the cavous body of the
brain, the cavernous or spongy bodies of the penis, &c.

Body, reticular. See RETICULAR.

Body, in speaking of a horse, denotes the chet, but chiefly
the flanks.

A horse is said to have a good body when he is full in the
flank; a light body, when he is thin or slender in the
flank. If the lat of the short ribs be at a considerable
distance from the haunch-bone, though such a horse may
have a tolerable body for a time, if he be much laboured,
he will lose it. It is a general rule never to buy a horse that
is light bodied and fiery, because he will presently destroy
himself.

Body of a plant, in Botany. See BOTANY.

Body of a piece of ordnance, in Gunnery, that part com-
prehended between the centre of the trumpons and the calca-
bel. It ought always to be more forntified than the rest. See
CANNONS.

Body of a pump, in Hydraulics, the thickest part of the
barrel or pipe of a pump, within which the piston moves.
See PUMP.

Body, in Geometry, denotes the same with solid, which fee.

Bodies, regular, or Platonic, are those which have all their
sides, angles, and planes, similar and equal.
BOE

Of these there are only five; viz. the tetrahedron, consisting of four angles; the octahedron, of eight; the icosahedron, of twenty; the dodecahedron, of twelve pentagons; and the cube of six squares. See Regular bodies; see also Tetrahedron, &c.

Body, in Law.—A man is said to be bound or held in body and goods; that is, he is liable to remain in prison in default of payment.

A woman, though in other respects she cannot engage her person but to her husband, may be taken by the body, when the creditors have a separate trade.

Body of the place, in Fortification, denotes either the buildings included, or more generally the inclosure itself. Thus, to construct the body of the place, is to fortify or inclose the place with bastions and curtains.

Body is also used for an assemblage of various different things collected into one; more particularly a number of persons united into a company or college.

A state or nation, under the administration, of one sovereign, is called a body politic. All large empires are unnatural, because the relation between the head and limbs is here too remote. No body, either natural or politic, can long remain found without exercise. See Corporation.

Body, corpse, in War, is an aggregate or assemblage of forces, horrid and foot, united and marching under some chief.

An army, ranged in form of battle, is divided into three bodies: the van-guard, the rear-guard, and the main body; which last is ordinarily the general's post.

Body of reform, in the Military Art, a draught or detachment of a number of forces out of an army, who are only to engage in case of necessity.

Body, in matters of Literature, a name given to a collection of whatever relates to any particular science; thus we say, the body of the canon law; the body of the Saxon law. King James I. had a design to compile a body of the English law.

The body of the civil law consists chiefly of the Institutes, Pandecte, Codex, and Novels. A glosseated body, is that to which glosses are added in the margin, composed by several lawyers.

Body is also used figuratively, for confidence, solicitude, and strength. In this sense, we say the body of a cloth, wine, &c.

Vintners have divers arts of increasing or diminishing the body of wine.

Body, among Painters.—A colour is said to bear a body, when it is capable of being ground so fine, and mixing with the oil to entirely, as to seem only a thick oil of that colour; as white lead, lamp-black, vermilion, lake, indigo, &c. But verdiers, imalt, &c. will not embody with the oil, but are still apt to separate from it in working.

Body plan or plane of projection, in Ship-building, is a section of the ship at the midship frame, or bawset place, perpendicular to the keel and half-breadth planes. The several breadth, and the particular form of every frame of timbers, are described on this plane. As the two sides of a ship are similar to each other, it is therefore unnecessary to lay down both, hence the frames contained between the main frame and the stem are described on one side of the middle line, commonly on the right-hand side; and the after frames are described on the other side of that line.

BODZELIN, in Geography, a town of Poland, in the palatinate of Samborin, 24 miles south of Radom.

BOE, in Ancient Geography. See Boe.
vulfimic affinitii." Helmin. 1550, 8vo. This may be considered as the earliest record of the contagious catarhal fever, which has many times since visited the world, and which has, in this country, been familiarly denominated the influenza.


BOECLER, John-Henry, an eminent German philologist, was born at Cronheim in Franconia, in 1610, and, preferred, at the age of 21, on account of his great learning, to the office of professor of eloquence at Strasbourg. In 1649 he was invited to Sweden by Queen Christina, and appointed to the chair of eloquence at Upsal, and to the office of royal historiographer; but being obliged by ill health to quit the country, he became professor of history at Strasbourg. He was counsellor both to the elector of Mants and to the emperor, and received a pension from Louis XIV. He died in 1692. His principal works are "Commentationes Pliniansi," "Timur, vulgo Tamerlanus," 4to. 1657; and " notitia St. Romani Imperii," 1651, 8vo; "Hillo in, schohs princiwm;" "Bibliographia critica," 1715, 8vo; "Diflertationes Academicae," 3 vol. 1710; "Animadversiones in Polybius." 1710; "Commentatio in Grimli librum de jure belii et pacis," 1712. He wrote, besides, Latin commentaries on various ancient authors, and several tracts on German history. Nouv. Dict. Hist.

BOEDROMIA. In Antiquity, from 2: Hapta, helper, derived from 2, I cry, and Cpa, I run. Folk mms feats held at Athens, in memory of the fuccour brought by Ion, son of Xuthus, to the Athenians, when invaded by Eumolpus, son of Neptune, in the reign of Euricthens Plutarch gives another account of the beecromia, which, according to him, were celebrated in memory of the victory obtained by Theseus over the Amazons, in the month Buedromion, called by the Corinthians "Panemos;" which was, in the ancient chronology, the third month of the Athenian year. It consisted of thirty days, and answered to the latter part of our August and beginning of September.

BOEFIA, in Biological. See Breemen.

BOEHEM, Philip Adolphus, son of Julius B, professor of anatomy at Hall in Saxony, under whom he received his education; was admitted doctor in medicine in 1736. As he applied his mind particularly to the study of midwifery, he gave, for his inaugural thesis, "De precavenda polypo uteri generatice." His next dissertation, which was published in 1741, in 4to. was "Situs uteri gravidici, ac testiculi ac fidei placentae in utero. In this he has given a critical examination of the midwifery forces used in England, which he compares with, and prefers to Leuert's. These pieces were added by the author to his edition of Sir Richard Manningham's "Compendium artis obstetriciae," published in 1746, 4to. Having acquired celebrity by these and other works, he was adopted member of the Acad. Nat. Curius. and foreign associate of the Royal Academy of Surgery at Paris. He was also appointed to succeed his father as professor of anatomy and medicine in the university at Hall. In 1749 he published "Institutiones ophthalmologiae, in usum prelectionum," 8vo. Haller particularly commends in this work the engravings of the embryos, and some facial skeleton. His "Observationum anatomicorum, faciculis primus," folio, was published in 1752. Among many rare and curious objects are, an engraving of a pregnant uterus, to shew the membranous decidua, and a fetus in one of the Fallopian tubes, with the placenta. The second collection, also in folio, published in 1756, contains a smaller fetus in one of the tubes, and a child with two bodies and only one head. For the titles of the remainder of his dissertations, see Haller. Bib. Anat. and his collection of med. cal thufes, in which the greater part of them is inserted.


Species. 1. B. cundata. Brown Jam. 258. "Leaves opposite, ovate, acute, ferrate; racemes very long, pendulous; flowers discous; item suffrutesco. A shrub ten or twelve feet high. It grown calls it the nettle-tree. 2. B. littoralis. "Leaves opposite, ovate-lanceolate, ferrate; flowers conglomerate, axillary, monoeccus; item herbaceous, four-cornered." Native of Hihpania. 3. B. cymbacea. "Leaves opposite, ovate, acuminate ferrate; racemes spiked, axillary, erect, fimple." An annual plant, with a lucid, herbaceous stalk, dividing into several branches; leaves with three longitudinal veins; on pretty long petioles. A native of North America and Jamaica. 4. B. ramiflora. "Leaves alternate, broad-lanceolate, acuminate, ferrate, wrinkled; flowers aggregate, axillary and lateral, monoeccus, distinct. Male three-flowered. A shrub, eight feet high, with long branches; leaves fickle-shaped, flowers greenish, placed towards the end of the twigs; very different in size, some being two inches, and others a foot in length on the same twig. Male flowers small, yellowish, numerous, aggregate, on the kafles old branches. Female flowers whitish on the younger twigs to the very end. Native of Jamaica and other Islands of the Well Indies. 5. B. hirta. "Leaves alternate, ovate, acute, ferrate, hirsute; flowers monoeccus, heaped, axillary, mixed." A native of Jamaica.

La Mare is has not inserted this genus either in the alphabetic part of the Encyclopedia, or in the subsequent systematic folio of figures. He follows Linnaeus in referring the cymbacea to urtica, and the ramiflora to cactus.

BOEL, Peter, in Biography, an excellent painter of fruit, flowers, and animals, was born at Antwerp in 1625, and having been a disciple of Snyder, whose widow he married, he went to Italy, where his uncle Cornelius de Waal resided, and in his return through France, was much employed, particularly at Paris, where he continued for some time. He died in 1690. As an art it he copied after nature, with a free and bold pencil, and a tint of colour that was natural and beautiful. There are some few flight, but spirit'd, etchings by Boel, from his own compositions, representing various animals, &c. Cornelius Boel, who flourished in 1611, and Coryn, or Quirin Boel, who flourished in 1658, both engravers, were of the same family. Pickering. Strutt.

BOELE-
BOELE-BOELE, in Geography, a district of the island of Celebes, situated in the bay of Boni, at and near a river of the same name. To the west it has Wawoo Wolee; to the south, the river Calfa; to the north, the river Tasika; and to the east, the shores of the bay. It is sometimes called Telhampoe, and has three chief townships, viz. Boele-boele, Lamant, and Radja, which are all independent of each other. The kings of Boni consider it as an appanage of their crown.

BOELE-COMBA, a territory of Celebes, which was anciently a separate kingdom, but in later times it was subjugated by the Macassers; and is become one of the provinces belonging to the Dutch East India Company. It stretches from the river Kalenkongang, which divides it from Boutain, to Bera, or rather to the river Bampang, which runs between them; to the north of it lie the mountains of Kyndang, which separate it from Boni, or rather from the highlanders of Tournay; and to the south, it is washed by the sea. The land is fertile in rice, and abounds in game and extensive forests; but the timber is not adapted to the construction of houses. When the wet monsoon renders it dangerous for ships to lie in the road before Boele-Comba, they run into the river Kalenkongang, near the mouth of which stands the palisaded fort Carolina, in which the resident of the Dutch East India Company, who is a junior merchant, has his abode. The province of Bera reaches from the river Bampang eastward, along the sea-coast to the point of Lallem or Laffos, and thence northward to the point of Cadjang; and on the land side, it borders upon Boele-Comba, Tournaj, and Kadjang, belonging to Boele-Boele. This country belongs to the Dutch company. It is barren and rocky, but has some woods which furnish timber for building proas. The men are good warriors both by sea and land; the rich are merchants; and others employ themselves in building proas, and in manufacturing a sort of coarse white cloth from the cotton which the place supplies.

BOELON. See Belon.

BOEN, in Geography, a town of France in the department of the Loire, and chief place of a canton in the district of Montbrison, seated on an eminence near the river Lignon; 6 leagues south of Roanne, and 3½ north of Montbrison. The territory contains 1220, and the canton 10,929 persons; the territory comprehends 395 kilometres, and 22 communes.

BOENAC, in Ichthiography, a species of Doriomus, described by Dr. Bloch. The body is of a clear olivaceous colour, marked with seven oblique brown bands; and the caudal fin is rounded. This fish is mentioned as a native of the seas about Japan, where it is called yean bonacem. There are seven rays in the Gill membrane of this species, fifteen in the pectoral fin, six in the ventral fin, eleven in the anal fin, sixteen in the caudal fin, and twenty-five in that on the back.

BOENA, in Ancient Geography, a town of Cappadocia, in the interior of the Galatian Pontus. Ptolemy.

BOEON, a town placed by Ptolemy in the interior of the Tauric Chersonesus.

BOEON, or Boelo, a town of Greece, in the Doric region, according to Thucydides, near mount Parnassus. This was one of the four cities which, according to Pliny, Strabo, and Steph. Byz, gave the name of "Tetrapolis" to the country peopled by the Dorians, near mount Oeta.

BOEONUS, Diu, an island of India, according to the Periplus of the Erythrean sea, placed by M. d'Anville at the south-west entrance of the "Barygazenus finus."

BOETIA, a name given to two ancient kingdoms of Greece; one founded, or rather restored by Cadmus, and called by him Boeotia, from the ox (bas), which is said to have directed him to the place where he built the capital of his kingdom, afterwards known by the name of Thebes; the other in Thedaly, called to have been founded by Boeotus, the son of Neptune, and brother of Geonus, by Are, the daughter of Geonus king of Celis. This Boeotus, according to Bryant (Anal. Anc. Myth. vol. ii, p. 326.), from whom the Boeotians are supposed to be descended, and from whom this country is said, by some, to have derived its name, was an imaginary personage, and merely a variation of Bouts and Butus, the ark; which in ancient times was indifferently styled Theba, Argus, Are, Butus, and Boeotus. This Boeotus of Greece, according to the mythology of this writer, is the same with Bouts of Egypt, Battus of Cyrene, and Buto or Budge of the Indians. The history of the origin of this kingdom is intermixed with fables; but it is more certainly known, that the possessors of this settlement held it for more than 200 years; and that when they were expelled from it by the Thebans, they fought a new establishment in that country, which till that time had been called Cadmeis, and which was then named Boeotia. We are informed by Diodorus and Homer, that these Boeotians signalized themselves at the Trojan war; and the latter adds, that five of Boeotus's grandsons were the five chiefs who led their Boeotian troops thither. Whatever be the true etymology of the name Boeotia, given to this country, it was distinguished by several other appellations, according to its supposed founders: those, who ascribed it to Ogyges, called it Ogygia; others called it Cadmeis, from Cadmus; and the others it was demominated Aonia, from Aon, the son of Neptyne; and Hypsis, from Hypis, the son of Aths. It is now called Straumvilia, and Thebes its ancient capital, Thive, and corruptly by the Greeks, Stibes or Stives.

It bordered on the east with Attica, and was in time joined to it, being parted from it by the mountain Citheron; on the north, it was bounded by the Euphrates river, now called the Negropont; on the west it had the kingdom of Phocis; and on the south, the gulf of Corinth. Its utmost extent from sea to sea was i½ to, and it was nearly of the same length from north to south, but approaching to a point eastward. Ephorbus, from Strabo, calls it ἔποικη τοιχατία, ἔποικη τοιχατία, because it was contiguous to three seas; and by means of its commodious havens it could carry on a commerce on one side with Italy, Sicily, and Africa; and on the other, with Egypt, the isle of Cyprus, Mauritania, and the Hellespont. It had also the large lake Coa, and the two large rivers, the Aipus and Teneius, besides other streams, by which it was watered and rendered fertile. This country is partly hilly, especially Aonia, properly called; the soil is and flat, and abounding with excellent pasturage and corn; but the air was so dense and foggy, that Horace thought it influenced the genius of the inhabitants. The Boeotians, in general, were reckoned not to possess its penetration and vivacity, which characterized the Athenians, whose air was remarkably pure, though separated from them only by mount Citheron; but this, perhaps, might have been attributed more to education than to nature. As they employed their time more in bodily than in mental exercises, they were deficient with respect to that faculty of expeditious, those graces of elocution, the knowledge derived from study, and those pleasing manners, which are more the work of art than nature. But it is thought by some, that Boeotia produced no men of genius. Several Thebans have done honour to the school of So-crates. Epaminondas was not less distinguished for his knowledge than for
for his military talents. It should also be remembered, that Bocotia was the birth-place of Herod, Corinna, and Pindar. Its most remarkable places were the Trophonian cave, Theopis, Antis, the limits of Thermopylae and Thebes, which see respectively.

The government of Bocotia was altogether monarchical, and peculiarly despotic, the will of the kings being the law; and of these some governed more like tyrants than moderate sovereigns. Plutarch, in his "Morals," mentions an ancient custom that prevailed among them; which was the manner of introducing their new-married women into their new habitations. They were brought home in a kind of chariot, or cart, the axe-tree of which was immediately burnt, thus intimating to the bride, that she was fixed with her husband for life, and must not expect to return to her parents.

The Bocotians, as to their general character, were courageous, inflexible, and vain; and with them the transition was very short from passion to inault, and from a contempt of law to a total disregard of the dictates of humanity. The smallest expectation of advantage gave occasion to the groffest acts of injustice; and murders were frequently the consequence of the most frivolous quarrels. The women were tall, well-formed, and generally of a fair complexion; and their voice was remarkably sweet and tender; whereas that of the men was harsh and disagreeable, and in some menfure suited to their character. Of this character for inulence and ferocity, which generally distinguished the Bocotians, no traces were to be found in a body of young warriors, called the "Sacred Battalion," consisting of 300, who were brought up together, and maintained at the public expense in the citadel. Their exercises, and even their amusements, were regulated by the melodous sounds of the flute. To prevent their courage from degenerating into blind fury, care was taken to inspire them with the noblest and the most animated sentiments. From this band each warrior chose a friend, to whom he remained inseparably united, whom it was his ambition to please, and to share his pleasures and sufferings in life, and his labours and dangers in battle. These 300 warriors were at one time distributed in troops at the head of the different divisions of the army. Pelopidas, who had frequently the honour of commanding them, having made them fight in a body, the Bocotians were indebted to them for almost all the advantages they gained over the Macedonians. Philip defeated this cohort, that had been invincible, at Cheronza; and the prince when he saw these young Bocotians flattered on the field of battle, covered with honourable wounds, and lying side by side on the ground on which they had been stationed, could not refrain from tears, but bore a noble testimony to their virtue as well as to their valor. Plut. in Pelop. t. 1. p. 187.

For the succession of the kings of Bocotia, after Cadmus, and the history of the kingdom as a monarchy, see Thebes. The Bocotians, after having expelled their kings, who had reigned in succession from Cadmus to Xanthus, for about 300 years, formed themselves into a republic, of which the chief magistrates were the prator, or strategus, the Beotarchi, and the Polearchi. The authority of the prator, who was chosen from among the Beotarchi, lasted only one year, and resembled that which was vested in the pratores of Achaia and Etolia. The Beotarchi affixed him with their advice, principally in time of war, and commanded under him; and they constituted the supreme court in military affairs; so that the prator could not act in a manner contrary to their determinations. They also bore a great sway in the civil administration, and hence derived their title. Their number was uncertain, being 7, 9, or 11; they were chosen yearly, and obliged by law, as well as the prator, to resign their office on pain of death, before the first month of the new year was expired. The Polearchi were altogether civil magistrates; it being their province to maintain peace and concord at home, while the Beotarchi were employed in the wars of the republic. Besides these officers, there were four councils in which the whole authority of the state was vested. These were composed of the deputies that were sent by all the cities of Bocotia; and without their approbation, the Beotarchi could not declare war, make peace, conclude alliances, or transact any business of importance. The Beotians, and specially the Thebans, were continually harassed by the princes of Macedon; nevertheless they took part with Philip against the Romans, and could not be prevailed upon by the Athenians and Achaeans to desert him, and to join the other states of Greece, till he was entirely defeated in the famous battle of Cynocephale. They then, foreseeing their danger, sent deputies to Flaminius, imploring his protection. He received them with great humanity, and put them upon the same footing with the other allies of the republic in Greece. Flaminius, at their request, obtained the release of the Beotians who fell in the Macedonian army; but notwithstanding this favour granted them by the interposition of the proconsul, they neglected to make the necessary acknowledgments, and filled up all vacant offices with persons who were enemies to Rome, and attached to the interests of Macedon. Flaminius was exasperated by this conduct; and Brachylus, their praetor, was murdered by the friends of Rome. The murderers, however, were discovered, and one of them, Philitrus, was put to death. For this murder of their praetor the Beotians determined to be revenged; and they took occasion to asemble all the Romans whom they found wandering about in the fields. In consequence of this outrage, Flaminius ravaged their territories; but, upon their consenting to deliver up the offenders, he defied from any further acts of severity; and the Beotians duly apprized of his lenity, continued ever afterwards faithful to the Romans. But as some of their leading men joined Perseus, king of Macedon, in his wars against the Romans, the whole country was, on that account, treated with great severity; Rome being at this time under no apprehension of an invasion from Antiochus, as she was when Flaminius was so easily appeased. At the dissolution of the Achaean league, Beotia, with the rest of Greece, was reduced to a Roman province. See Achaeans.

BOEHEMIA, in Geography, a province of Germany, in the circle of the Lower Rhine, and county of Rockingham, 6 miles W.S.W. of Rockingham, and 42 N. of Cologne.

BOERHAAVE, Herman, in Biography, a professor of medicine and chemistry, of such eminence as to form a new era in these sciences, was born at Voorhout, about two miles from Leyden, in Holland, the 31st of December 1668. His father, James Boerhaave, the pastor of the village, having nine children, took on himself the care of their education; and, as he intended Herman for the church, he was careful to ground him well in Greek and Latin. In these languages he made such rapid progress, that when he was only fourteen years of age, his father sent him to complete his education to the public school at Leyden; and, in 1731, he went from thence to the university. His father dying soon after, and in slender circumstances, the progress of our young student's attainments would have been interrupted but for the friendly assistance afforded him by Daniel Van Alphyn, burgomaster of Leyden, who furnished him with the means of continuing his studies. The kindness of this worthy man was remembered by Boerhaave, with gratitude, to the end of his life. He now applied to the mathematics, and to acquire a knowledge of the Hebrew and Chaldee languages; propounding, agreeably to the intentions,
of his father to qualify himself for the ministry; and that he might relieve his patron from a part of his expense, for his influence, he gave private lessons to the students in mathematics, and here probably laid the foundation of that excellence in the art of communicating knowledge by lectures, for which he in time became so celebrated. In 1692, he took his degree in philosophy, and gave for his inaugural thesis, "De distinctione mentis et corpore," in which he refutes in a solid and judicious manner, the errors of Hobbs and Spinoza. This, however, did not prevent his being suspected of Spinozism, which made him quit his intention of entering into the service of the church, and turn his mind to medicine, particularly to the study of chemistry, as more suited to the activity of his disposition. To acquire a knowledge of anatomy, he read the works of Vesalius, Fallopius, and Bartholin, and attended dissections under Nuck. In medicine, he studied Hippocrates, and the rest of the Greek and Latin writers in succession, but returned to Hippocrates, whose works were always mentioned by him with veneration. Among the moderns, he gave the preference to our countryman Sydenham, whom he called the Divine Sydenham.

Thus qualified, in 1693, being 25 years of age, he was admitted by the university of Harderwyck, in Guelderland, to the degree of doctor in medicine. His thesis on this occasion was "De utilitate explorandorum excrementorum in aegris, ut signum." To the urine he paid the greatest attention. He now applied to the practice of medicine, from which, however, he is said to have derived but little profit. As his practice, therefore, employed but a small portion of his time, he had leisure for examining all the theories of medicine which had prevailed, in succession, from the earliest time, and of forming from them a theory, if far from perfect, much less excusable than that which had preceded it; and which, when matured, superseded them, and became the reigning doctrine over all Europe for more than half a century. Drelincourt, who had long been professor of the theory of medicine, dying in 1701, the university of Leyden seized the opportunity this event afforded them of attaching him farther to that place, by placing him in the vacant chair. This they were prompted to by gratitude as well as by prudence; and Boerhaave having refused an advantageous offer of settling at the Hague, and though in no public office or capacity, he had already acquired a considerable reputation, and drawn a great many foreigners to Leyden, to hear his lectures in chemistry. On the occasion of this promotion he read his "Oratio de commendando studio Hippocratico." In Hippocrates, he particularly admired the correctness of his descriptions and histories of diseases, his patience in attending to the indications of nature, or the constitution, to which, with little interference, he frequently committed the cure of the diseased, and his honest and sincere account of the termination of the disease, whether in health or death. In this he has not been always followed by writers of cafes. In 1703, he was invited to accept a professor's chair at Groningen; but as he had refused, when much less known, an establishment at the Hague, he had no difficulty, now that his fame was more extended, and pupils were flocking to him from all parts, in rejecting this offer. The university at Leyden thought it necessary to reward this fresh proof of his attachment to the country by augmenting his salary. About this time he delivered his "Oratio de usu ratiocini in medicina." These compositions were all published; and as they were drawn up and polished with care, they doubtless contributed in extending the fame of our professor over Europe. On the death of Peter Hotton, curator of the university garden, in 1709, he was appointed his successor, and made professor of botany. He now read his "Oratio qua repurgate medicine faculta affertiur simplicitas," showing that the knowledge of medicine would be easily obtained by avoiding hypotheses, and attending to facts and observations; and that diseases would be more certainly cured by using only a few choice and simple medicines, than by the heterogeneous compositions then in vogue. He now, in addition to his other studies, employed himself sedulously in acquiring a more extended knowledge of plants; and this continued to be his amusement and delight to the end of his life. "Often have I seen," Haller says, "the good old man, moving slowly along the garden, at a very early hour in the morning, attending to the culture of the numerous exotics he had introduced there, clasping and arranging them for his lectures." One year only after being appointed professor in botany, he published "Index plantarum quae in horto Lugduno Batavo repeririunt," 8vo. This work was re-published by him in 1720, much enlarged and improved, including a history of the garden, 2 vols. 8vo. In 1709, appeared his "Aphorismi de cognocendis et curandis morbis," 8vo.; "aurum in numbrare abellibus," Hallerays. A work universally read and admired, on which Baron Van Swieten, his illustrious pupil, who had attended his instructions for near twenty years, published his Commentaries, in 1742, extending it to five volumes in 4to. About the same time he published his "Institutiones rei medicinae in usu annua exercitationis domnestica," 8vo. These two works, the one treating of the history and cure of diseases, the other of the physiology of the human body, improved and enlarged at different times by the author, have passed through numerous editions, and have been printed in every country, and translated into every language in Europe. Schultens says, there is a version of them also in the Arabic. Boerhaave was now in the zenith of his reputation, and had such a confidence of students from all parts of the world, as never previously occurred to any one professor. He gave lectures on the theory of medicine, in botany, and in chemistry, and delivered them with such clearness and precision, as to fill his pupils with equal admiration and delight. Haller, who was two years under his tuition, speaks of him with enthusiasm. "Vix fui parum habitus." We have hardly since seen, and perhaps may never again see his equal. In 1714, he was made rector of the university. On laying down this office at the end of the year, he read his discourse "De comparando certo in physis." It is only to be acquired, he says, by experiment, and by a careful and minute examination of natural objects. Bidloo dying at this time, he was advanced to the chair of professor in the practice of medicine; and on the death of Le Mort, in 1718, he was made professor of chemistry. He was now at the head of every branch of medicine; and his pupils were become so numerous, Dr. Matty says, that Leyden was scarcely sufficiently capacious to contain them. In addition to these numerous vocations, he was frequently consulted, in cases of difficulty and danger, by physicians in all parts of the world. With these advantages, it will not excite surprise, that his wealth should accumulate and become extremely abundant. As his diet was frugal and sparing, and he was plain in his apparel, he has been accused of being too parsimonious; but it should be considered, that attached as he was to science, and immured in humours of such variety and magnitude, he had no time for expense or luxury, except in what regarded the improvement of science. In procuring rare and valuable books, and in collecting plants from distant countries for his garden, he spared, we are told, no expense. In 1718, Boerhaave had published "De Chemia, sive errores expurgantes," which was all he professed giving on that subject; but some of his pupils having at the instigation, he says, of the book-sellers, ventured to print, in his
name, transcripts of his lectures, so incorrectly taken as to materially injure his fame, to vindicate himself from the disgrace this might bring upon him, he found himself under the necessity of preparing his lectures for the press; and, in 1732, he published them under the title of, "Elementa Chemiae, que annuvariorum labore decedit, in publica privatius scholis. Hermannus Boerhaave," 2 vols. 4to. The work is dedicated by a most affectionate address to his brother James Boerhaave. The first volume contains the history and the theory of the art, and is furnished with numerous engravings and descriptions of furnaces, and other instruments of chemistry. The second contains the procels, or operations chemical. In the first volume he gives a catalogue of all the works he had published, preceding it, with much modestly, with this declaration; "Scientia, me mihi edificavit omnium, praeter sequentia, quae non alicui verrecundia recensenda isto." At the back of the title-page he says, "Ut certam sit lector, hume librum a me editum prodisse, propriam manus adievidendum putavi; nec pro me agnosco, ubi huc adscriptio abest, H. Boerhaave"; uniting, as his custom was, the H and the B.

The character of Boerhaave, as a chemist, is thus given by Maccouer, in his Preliminary Discourse to his Dictionary of Chemistry. "Next to Stahl we place the immortal Boerhaave, though he excelled in a different way. This powerful genius, the honour of his country, of his profession, and of his age, threw light upon every subject which he treated. To the view which he took of chemistry, we owe the finest and most methodical analysis of the vegetable kingdom; his admirable treatises on air, on water, and on earth, and particularly on fire, which is an almighty matter-piece. To be complete, that the human understanding can fearfully make an addition to it." To his moral character his disciple Haller bears the following honourable testimony: "Some, though few, will render him in eternity; his divine temper, kind to all, beneficent to foes and adherences, detracting from no man's merits, and binding by favours his daily opponents, may, perhaps, never be paralleled." In his conversation he was easy and familiar, and in his demeanor grave and sober, but at the same time disposed to pleasantry, and occasionally indulging in good-humoured raillery; so that he was compared to the admirable Socrates, whose hull he is also said to have embellished in features. By his pupils, whom he regarded with the kindness of a parent, he was beloved and respected in a very high degree. Piety formed a distinguishing feature of his character; and devotion was his daily exercise.

A Boerhaave was of an athletic make, had accosted himself to exercise on horseback, to spend much of his time in the open air, and to use a frugal and plain diet, he had been enabled thus far to endure the extreme fatigue of his professional labours, with only some occasional interruptions from illness; but being grown corpulent, and incapable of riding, his constitution began to be on the decline. So that, in 1732, he found it necessary to resign his offices of professor in chemistry and botany. The speech he made on this occasion, was published under the title of "Oratio cum cathedrae chemiae et botanicae vacatiensi," 4to. In this he recounts some of the most memorable occurrences of his life, and speaks with gratitude of the patronage and favours he had received from individuals, in enabling him to complete his walk in life, as well as from the members of his own profession, who had admitted his improvements in the theory and practice of the arts he taught, with more kindnes and less opposition than is usually given to innovators of any kind. This doubtless arose in part from the great learning and abilities he was known to posses, and from the high reputation he had thence acquired, demanding respect; and partly from his disposition, averse from contention, and thinking but modestly of his endowments. From whatever cause it might arise, there was never perhaps so great a revolution in any science brought about with so little opposition as was made to that produced by Boerhaave. He had before, viz. in 1728, been admitted foreign associate of the Royal Academy of Sciences in Paris; and in 1730, he was elected a fellow of the Royal Society in London. The same year he was again made rector of the university at Leyden. On quitting that office, he read his "Oratio de honore medicis servitute," which was also published in 4to. In this he again indulges on the necessity of attending to the method nature takes in curing diseases, or the manner in which they terminate spontaneously, as practised by Hippocrates. Though this accedence from public employment procured him some repose from his labours, he still continued revising and correcting his original works. He also spent much of his time in revising the works of other writers, and published more correct editions than were before extant; as the "Opera Anatomica et Chirurgica. Acc. Vefalii," fol.; Albinus contributed to this work; of Bellinus, "De minis et publisis," 4to. 1730; of Proper Alpinus, "De praefagienda vita et morte," 4to. 1733; Arznei," "De cauis, significis morborum," fol. 1731; Luidinus, "De loca venearum," fol. 1725, and some other works. Still, however, he enjoyed coffee and relaxation from the more fatiguing part of his duties, and he passed the principal part of his time, during the remainder of his life, at his manor, a small distance from Leyden, in domestic recreations, with his wife and daughter, to whom he was much attached. Here he had a garden well-rocked with every thing that could contribute to his pleasure, and here he amused himself with his violin, in which he was a proficient. Towards the end of the year 1737, he became sensibly affected with difficulty of breathing, and a sense of suffocation, which incommoded him, whether walking or lying down. This went on increasing; and a small time before his death, he perceived a strong pulsation on the right side of his neck, which he attributed to a polypous concretion in the aorta. No remedy being competent to combat this dreadful disease, he expired calmly, in the midst of his family, on the 23d of September 1738. He was buried in the church of St. Peter's at Leyden, where his fellow-citizens erected an elegant monument to his memory. The pedeslab is of black marble, supporting an urn, decorated with emblems: figures, representing the four ages of man's life, and the lances in which he excelled. On one face of the pedeslab is a medallion with the head of Boerhaave, surmounted with suitable decorations, his feet being under it, on which is engraved his favourite motto, "Simplicissimum veri," simplicity the seal of truth; and underneath, "Salutifer Boerhaai genio facrum," faired to the healing-reforing genius of Boerhaave.

In the course of this sketch of the life of Boerhaave, his principal works have been not ed; for a more complete catalogue of them, see Haller's Bib. Med. Pract. Anat. et Bot., and Ely's Dict. Hist.
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1740 he went to Peterburgh, where his talents soon procured him the situation of professor in medicine in the university there, and of one of the members of the imperial academy. By Portal and Blumenbach, he is called archiatherian, or auricular physician, and first physician to the emperors, confounding him with his brother, Herman Kaan B. who about the same time enjoyed that honour. In the course of a few and tedious illness, from which he with difficulty recovered, he lost his hearing. This happened in 1749. He died in 1753. His works are, "Periplus dicta Hippocrati, per universum corporis anatomiae illustrata," Lugd. B. 1738, 12mo; in which he shews there is a constant inhalation or absorption, and an exhalation, or periphrasis, carried on, not only on the surface of the body, but in all the principal cavities. "Impetus faciens dictum Hippocrati per corpus contenciens, philiologic e et physiologic illustratum," Lugd. Pat. 1745, 12mo. In this he treats of the action of the mind upon the body, by the means of the nerves; of the fabric and motion of the muscles; of the effects of opium, given to a dog, &c. He also gave the anatomy of an elephant, which he had an opportunity of dissecting; and of two monstrous infants, and a dissection on what has been called, improperly he says, hemorrhoiditis; no real hemorrhoiditis having ever been produced. Haller. Bib. Anat. Portal. Bib. Chir.


Gen. Char. Cal. oblong, tubular, and angular, placed beneath the corolla, with a contracted, entire mouth, permanent. Coroll. monopetalous, bell-shaped, upright, obtuse, five-cleft, plaited, fixed on the calyx. Nect. flabby, sub-cylindrical, with a mouth slightly toothed, surrounding the base of the germ. Stam. filaments one, two, three, or four, inserted on the margin of the calyx, between its teeth; capillary, near the bottom (within the calyx) more slender, upright, about the length of the corolla; anthers twin-globular. Fil. germ. roundish, pedicelled. Pedicel round, surrounding the corolla; style thread-shaped, twisted, as long as the filaments; stigma capitate. Pericarp. none; calyx enlarged, closed, encroaching the seed. Seed one, oblong, obtuse, angular. Observ. It is nearly allied to Mirabilis. The toothlets of the corolla are sometimes triangular, very small, and sometimes obsolete.


Dahl has injudiciously abolished this genus, and placed its species with the Valerian. In the opinion of Willdenow, it belongs properly to the class Tritaniria, and may readily be distinguished from valeriana by its very entire calyx, so minute, as scarcely to be visible, without the assistance of a lens, on which account it appears to have been overlooked by Linnaeus and La Marec. Professor Martyn, in his edition of Miller, has inadvertently given Calyces none, as part of its essential general character; though in the natural character translated from Schreber, he had properly assigned it one.

Species. 1. B. erica, upright hawgweed. "Stem erect, smooth; Stems two." Jacq. and Miller. "Stem tetragonal, smooth, with vicious joints, and flowers in a corymbose panicle." Willden. Stem two feet high, sprinkled with very minute protuberances as fine as hairs. Leaves waved, ovate, acute, rough at the margin, growing by pairs on long petioles from the joints of the stem, which are placed at a considerable distance from each other. Corolls cylindrical, white, with live reddish shades; segments acute, with small teeth interposed. Stigma capitate. Discovered by Dr. Houton at La Vera Cruz in 1731, and since found at the Society Isles. 2. B. adscendens. "Leaves oblong-ovate, somewhat flabby; flowers panicled; peduncles two- or three-flowered; stem ascending." Willden. Stem smooth, tetragonal; leaves petiolate, opposite, veined, entire, smooth; the young leaves and the margin and petioles of the older ones hairy; hairs joined as in veronica aphylla; panicle terminal, spreading, naked; peduncles two-flowered, involved in membranaceous bracts; fruit club-shaped, rough with small tubercles. A native of Guiana. Willden. 3. B. diffusa. "Stem smooth and even, spreading; leaves ovate." Linn. "Stem round, pubescent; flowers in corymbose heads." Willden. Leaves white underneath; flowers purple, with one stamen. A native of the East and West Indies. Cultivated in the royal garden at Hampton Court 1690. Mr. Miller received seeds from Jamaica by Dr. Houton. 4. B. birifera. "Stem spreading; pubescent; leaves ovate, repand, or serpentine." Reich. "Stem roundish, hairy; flowers in heads." Willden. Stems a foot high; peduncles axillary, flattening small close heads of scarlet diandrous flowers, which generally fall off in about half a day. A native of Jamaica. 5. B. plumaginosa. "Leaves subcordate, orbicular-acute, pubescent beneath; flowers in umbels." Willden. Umbels axillary, on long peduncles; coroll of a pale rose colour; flowers three; fruit turbinate, flat-topped, crowned at the apex with pedicelled tubercles. Willden. A native of Spain. 6. B. Jeandeauss. Lugd. Mar. Tab. 4. "Stem erect; flowers two-flowered; leaves cordate, acute." Linn. "Stem erect, flowers two-flowered, in umbels; leaves cordate." Willden. Stem Sharma, very flint, smooth, with alternate branches; leaves smooth; umbels of six green flowers; involucr of five leaves. A native of the rocky coasts of Jamaica and other West India islands. Cultivated in 1691, in the royal garden at Hampton court. 7. B. clystis. "Stem erect; lower leaves cordate-ovate, upper ones ovate, flowers with three stamens in umbels." It resembles the last genus, but differs from it in its smaller stem, in its upper ovate leaves, in its double larger purple flowers, and in the number of its stamens. Native place unknown. Described by Willdenow from a living plant. 8. B. repiculata. "Stem erect; leaves cordate, repand, truncate; flowers in umbels, with three stamens." Willden. Resembles the last genus, but differs from it in its herbaceous stem and opposite branches and peduncles. A native of India and China. 9. B. chlrophyllodes. (Valeriana Chlrophyllodes. Smithic. ind. fuic. 5.) "Leaves bipinnatid, toothed; flowers with three stamens in umbels." Willden. It has entirely the habit of a Boerhavia, and agrees in all the generic characters, excepting only the style which is triquet. 10. B. repens. "Stem creeping." Linn. Native of Nubia, between Mocho and Tangos. 11. B. angustifolia. "Leaves linear, acute." Linn. Native place unknown. 12. B. tetrandra. Willden. Stems creeping; flowers with four stamens. Fort. Prod. 2. Native of the Society Isles, found by Forster in the island of Hahine 1774. These are all the species in Willdenow's edition of the Sp. Pl. La Marec (Illuff.) has made the hirufata and the repens the same as the diffusa, and appears to have been acquainted with the adefendens, plumaginosa, excelsa, repanda, chlrophyllodes, angustifolia, and tetrandra; but has inferred two others, which as far as can be determined from their specific characters, seem to be distinct species. B. paniula. "Stem erect; leaves ovate, acute, panicled naked, filiform, very vicis." A native of South America. B. tuberofa. "Stem erect, thrubby; root tuberose, effusent." A native of Peru. The following may possibly be the hirufata, though he unites that species with the diffusa. B. acuta. "Stem procumbent, spreading, vividly pubescent;
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Boe

Boe; leaves ovate, obtuse; umbels small, somewhat in heads, lateral. A native of South America.

Propagata in Culture. None but the first, third, fourth, and fifth, have been cultivated in England. They will not thrive in the open air, but must be raised from seeds, and treated like other tender exotic plants. The first three are annual, and when they grow too tall to remain under a common frame, may be planted in a warm border, where, if the fesent prove favourable, they ripen their seeds; but a plant or two should always be placed in the house, to ensure a succession of seeds. The fourth, which is perennial, may be preferred in a warm floré two or three years. See Martyn's Miller.

Boernner, Frederic, in Biography, professor in medicine at the university of Wittenberg, in Saxony, and an active member of the Acad. Nat. Curif. received his education at Leipsic, where he was born, June 17, 1723. He published several dissertations on medical subjects, but his principal work is "Noctes Graphicae, sive opulenta medicina literaria," Rollock, 1755, 5vo. He died June 1751.

Boerneri, Codex, in Biblical History, a MS. of part of the N. T., noted G, in the second part of Wetstein's N. T. It belonged to Dr. C. F. Boernner, was collated by Kuller, and described in the preface to his edition of Mill's Greek Testament. It contains the epistles of St. Paul, that to the Hebrews excepted, which was formerly rejected by the church of Rome; it is written in Greek and Latin, according to one of those versions, which were in use before the time of Jerem. The Latin is interlined between the Greek, written over the text, of which it is a translation. Stemmmer supposes that the Latin was written since the Greek; but professor Matthi, who published this MS. at Meiden in Saxony in 1791, suggeests that an uniformity in the handwriting, and a similarity in the colour of the ink evidence, that both the Greek and Latin texts proceeded from the same transcriber. That it is an ancient MS. appears, says Michaelis, from the form of the characters, and the want of accents and marks of aspiration. It seems to have been written in an age when the transition was making from the uncial to the small characters; and from the correspondence of the letters r, s, and t, in the Latin translation, to that form which is found in the Anglo-Saxon alphabet, it is inferred, that this MS. was written in the Well of Europe, and probably between the 8th and 12th centuries. This MS. is preserved at present in the electoral library at Drefsen: and a copy of it is kept in the library of Trinity College, Cambridge, among the books and MSS. that were left by Dr. Bentley. Michaelis on the N. T. by Marth, vol. ii. and iii.

Boero, in Geography. See Burro.

Boeschot, a town of Brabant, on the river Nethe; 12 miles N. of Malines.

Boseroens, or Budgeroons, three small uninhabited atls of the East Indies, situated in the strait that lies between the island Saleyer and the point of Celbes, called Lassen. There these islands almost block up the passage between the southern part of Celebes and the northern part of Saîber, the whole space between which is about a league and a half. The strait is divided by the southermoor and middlemoor, or between the latter and the northermoor of the Budgeroons. This one of the most dangerous parts of the navigation, for ships failing to or from the Moluccas, or Spice islands; and it cannot be avoided without going round to the south of Saleyer, which is a much more dangerous route, on account of the great number of shallows and sunken rocks, which abound there, and are not accurately laid down in the charts.

Boesiippo. See Besippo.

Boethicus, in Entomology, a species of Hisperia (Pleb. Rir. Linn.) that inhabits India. The wings are tailed, blueish-brown, pale ath colour beneath, and undulated with whitish; a double ocellar spot in the anal angle.

Boethius, Anicius Manlius Torquatus Severinus, in Biography, descended from one of the most illustrious consular families of Rome, lived in the time of the emperor Zeno, near the end of the 5th century. He was born at Rome about 470, the same year with Martianus Capella, another Roman writer on music. He is said to have spent 18 years in the schools of Athens, pursuing the study of philosophy under Proclus; others, however, have questioned this fact, and it has generally been allowed, that the term of 12 years is too long. Nevertheless, his visit to Athens is intimated by much internal evidence, adduced by Brucker, Hist. Crit. Philol. t. iii. p. 524—527. and by an expression, though vague and ambiguous, of his friend Caesiodorus, (Var. i. 45) "longe potius Athenas introitus " It is certain that the erudition of the Latin language was insufficient to fatigue his curiosity; and that he devoted much of his time and attention to the study of Greek science and letters. From a letter of Caesiodorus, written in the name of Theoderic, it appears that he had the honour of introducing to the Romans in their own language, the music of Pythagoras, the astronomy of Ptolomy, the arithmetic of Nicomachus, the geometry of Euclid, the logic of Aristotle, and the mechanics of Archimedes. He alone was esteemed capable of dazzling the wonders of art, a fun-dial, a water clock, and a sphere which represented the motions of the planets. He commented upon parts of Aristotle, Cicero, and Porphyry; and from the commendations which he bestowed upon the latter, as the best interpreter of the former, he seems to have united the Platonic with the Aribotelian doctrine. Boethius seems to have been the first who applied fellohistic philosophy to the service of Christian theology; and he employed himself in defending the orthodox creed against the Eutychian, Ari, and Nestorian heresies, in a treatise "De Unitate et Uno." In civil life he attained to peculiar honours; as he was confus in 487. and also in 510; and he was also created patron, and advanced to the post of master of the offices. He married the daughter of his friend, the patronic Symmachus, and he enjoyed the peculiar satisfaction of seeing his two sons elevated to the consulare together in 522. Few perfons passed through life with a greater share of outward respect and honour; and few could be more distinguished by the testimonies that were given to his benevolence and liberality, his virtue and patriotism, as well as to his singular talents and learning. His own avowal claims our attent, that he had reluctantly obeyed the divine Plato, who enjoined every virtuous citizen to refuse the laws from the usurpation of ignorance and vice. For the integrity of his public conduct he appears to the memory of his country. His authority had restrained the pride and oppression of the royal officers; he had always pitied and often relieved the distresses of the 300,000, whose fortunes were exhausted by public and private rapine; and he alone had the courage to oppose the tyranny of the Barbarians, exalted by conquest, excited by avarice, and as he complained, encouraged by impunity. In their honourable contests, his spirit soared above the consideration of personal danger, and perhaps of prudence. In addition to his other learned labours, he had formed a design of translating all the works of Plato and Aristotle into Latin; but was prevented from executing his purpose by a premature death. Having for some years enjoyed the favour of Theodoric, the Gothic king of Italy, he was at length suspected of being hostile to
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his government, and of concurring with others, and particu-
larly with Albinius, who was accused and convicted on the
presumption of 
, as it was said, the liberty of Rome.
6 If Albinius be criminal, explained Boethius in the pre-
fence of the king, "the senate and myself are guilty of the
same crime. If we are innocent, Albinius is equally entitled
to the protection of the laws." The advocate of Albinius
was soon involved in the danger and perhaps the guilt of
his client; their signature, which they affixed to be a for-
gery, was affixed to the original address, inviting the emperor
Julian to deliver Italy from the Goths; and three witnesses
of honourable rank, but probably of infamous character, at-
tested the tenable desigil of the Roman patrician. Upon
this kind of evidence, Boethius was committed to custody,
and rigorously confined in the tower of Pavia; and a forril-
fenate, at the distance of 500 miles, pronounced a sentence
of confiscation and death against the most illustrious of its
members. During his confinement, he composed his treatise
"De consolatione philosophiae," mentioned in the sequel
of this article; and at length the executioners of Theodoric's
mandate fulfilled the savage commission with which they
had been entrusted, or, perhaps, even exceeded it, by the mode
of putting him to death. Some say that he was beheaded;
but others relate, that a strong cord was fastened round
his head, and forcibly tightened, till his eyes almost started
from their socket; and he was then beaten with clubs till
he expired. This event happened, according to some, in
the year 526, but according to others in 524. Boethius,
in his last hours, derived some comfort from the safety of
his wife, of his two sons, and of his father-in-law, the ve-
nerable Symmachus. But Symmachus, perhaps inadvertent
in the mode of mollifying his grief, was sometime after dragged
in chains from Rome to the palace of Ravenna, and there
put to death. A. D. 525. Theodoric, it is said, experienced
the bitternefs of self-reproach, and the anguish of an un-
avoiding repentance for the murder of these two illustrious
patrons, Boethius and Symmachus. His daughter Amala-
funtha is said to have referred to the sons of Boethius the
confiscated estates of their father.

His celebrated tract on music, divided into five books, was
first printed in black letter, with his treatises on arithmetic
and geometry, at Venice, 1495. It is remarkable, that in
the first book of the German famous 

or 

in the same manner as it is printed in the Oxford
edition of the Ancients, (see Diller, on the Muf. of the Ancients,
p. 27.)

It seems necessary here to give some account of this fa-
mous tract on music by Boethius, which, to read, was
long thought necessary to the obtaining of a musical degree
in our universities; and which, with great parade, has been so
frequently prized, quoted, and pronounced, by writers on
that art, to be of the greatest utility to every musician,
yet contains nothing but matters of mere speculation and
theory, translated from Greek writers of higher antiquity;
which, if necessary to be known at this time, would be more
profitably studied in the original; but the theory of every
art being vain and useless, unless it guide and facilitate
practice, the definitions, calculations, and reverses of boe-
thius, are no more useful or essential to a modern musician
than Newton's Principia to a dancer.

In the proemium, or introduction to his first book, "De
Mufica," he treats of the morality of music, and gives us all
the old stories concerning its miraculous powers of exciting
virtue, repelling vice, curing diffeales, &c. And in this book
we find whence Zarlinus, and all the Italian writers on music,
down to Padre Martini, drew their extensive divisions of mu-
fic into mundane, human, and instrumental. For Boethius says,"
"Tres effe Musica," lib. i. cap. 2. So had Arrhi. Quintilians
informed us, long before the birth of Boethius. And as far
as we are able to divine at present concerning these distinc-
tions, the ancients meant by mundane music, the music of
the spheres. By human, or humane music, the perfect or-
organization of our frame, and the union of soul and body.
By the last only, the instrumental, we are brought to real music,
by the grateful production and union of tuneful sounds.

Then we have definitions, such as are given in Euclid,
and all the Greek writers, on harmonies and speculative
music in Meibomius. After which, we have the doctrines
of proportion and ratio, inferred by Pythagoras, who
would not trust to the various and fallacious judgment of the
senses, but had recourse to reason and calculation to settle his
doubts. The account of the discoveries and harmonic laws estab-
lished by Pythagoras, not only infested in Boethius, but all sub-
sequent writers, is taken from Nicomachus, one of the seven
Greek writers on music in Meibomius. In the same book,
we have a very superficial and unsatisfactory account of the
genera. But we are indulged with several chapters on the
music of the spheres from "Cicero de Repub." lib. vi., where
the supposed analogy between the planets and the fentenary,
or seven sounds in music, is affected.

At the close of this book, chap. xxxiv. Boethius estimates
theory and speculation far above practice in music. But
what, we may ask, is the use to the world of such a theory
as he describes, without practice? Or, indeed, practice,
without the support of what is now underfood by theory?
The speculative theorems, confined to meditation and ex-
periments in harmonies, talk of music without hearing it;
and the mere practician hears it without understanding it.

Boethius allows him only to be a musician who can examine,
judge, and give reasons for what is done. Here we have the
origin of the verses ascribed to Guido:

Muficam et cantam, Maturam et distantiam, etc.

The whole second book is relative to the dispute between
the Pythagoreans and Aristoxenians, which is not yet settled,
about dividing the scales, whether by the ear, or by numbers.
All the musicians in Europe are now disputing whether we
should temper our scales on fixed instruments, or adopt the
triple progression of Pythagoras, and tune by perfect 4ths.
See Trifl: Progression, and Temperament. We have here
the tone-major and tone-minor to discuss; which we talk
about, but never feel or think of the distinction in our
modulation or performance. The apotome, comma, and limma,
are left for the amusement of speculative harmonists to talk
about, and for musicians to practice with their ears and fingers,
fans y penfer.

In the third book, Boethius continues his controversy
with the Arifloxenians, and proves what has been long
settled, that there is no such thing in music as a literal half-
note. The octave is said to contain five tones and two femi-
tones; and in the temperament of equal participation, the
twelve femitones of the octave must be nearly equal.

In book iv. the subject is purified of splitting of tones;
for the ancients could "divide and subdivide a tone from
south to south-west side."

We were very much disappointed formerly at the non-
performance of a promise made, book v. at chap. 3, the
title of which is "Mucicarium per Graecas ac Latinas literas
notarum m emancipari." But Meibomius says the promise
does not extend to the Roman notation in the Selden MS.
at Oxford; nor had the Romans any notation of their own
in the time of Boethius; and all the musical terms he uses are Greek, as were those of Vitruvius.

Even the eulogists of Boethius confess, that his work is so purely theoretic, that in reading it we never think of practice. Let us leave it then to philosophers who are content with imaginary sounds. The mention of instruments, or of the voice as employed in singing, never occurs. No allusions to the music of his time, but all is abstract speculation, tending doublets to the perfection of the art, but seeming little connected with it. The harmony he talks of is more the "harmonia mundi" of Kepler, than that of Handel and Haydn. Guido said, that Boethius's work was only fit for philosophers. In the middle ages, so few understood Greek, that those who were curious to know something about the miraculous powers of that music, imagined that they should find it in Boethius's translation, who had been educated at Athens. Such speculations are curious and amusing, in moments of meditation, to scientific and inquiring minds; but practical musician, whether composers or performers, can afford little time for such sublime and spiritual amusements. Nevertheless, he must be a dull and incurious professor, who seeks not the reason of things, the principles of his art, and origin and end. If he be at a metaphysical turn, let him read Galilei, Daniel Bartoli, D'Alembert, Holdc, Romanelli, Tartini, and Smith's harmonics. They are all intelligible, and lead to knowledge which he will be expected to profess; but for any thing useful that he can acquire from Boethius's speculations, or from the Greek theorists, his prototypes, that will make him a better composer or performer, the case is hopeless. Yet there are, who, after allowing that "it was of so little use in practical music, that they never thought of it in reading Boethius;" yet returning afterwards to former prejudices, it is infixed on, that "he has communicated to the world such a knowledge of the fundamental principles of the music of the ancients, as is absolutely necessary to the right understanding of our own system."

When we speak of the inutility of Boethius's work on music to the musical students of modern times, we presume not to extend our censures further. The writings of this great and good man on other subjects have been too long in evidence to be depreciated lightly. His most celebrated production was his ethical composition "De consolatione philosophiae," and has always been admired both for the style and sentiments. It is an imaginary conference between the author and philosophy personified, who endeavours to comfort and soothe him in his afflictions. The topics of consolation contained in this work, are deduced from the tenets of Plato, Zeno, and Aristotle, but without any notice of the sources of consolation which are peculiar to the Christian system. It is partly in prose, and partly in verse; and was translated into Spanish by king Alfred, and illustrated with a commentary by Afler, bishop of St. David's; and into English, by Chaucer and queen Elizabeth. It was also translated into English verse by John Walton, in 1410, of which translation there is a correct manuscript at the British Museum. Few books have been more popular, especially in the middle ages, or have passed through a greater number of editions in almost all languages. It has been observed by Mr. Harris, in his "Hermes" that "with Boethius the Latin tongue, and the lai remains of Roman dignity, may be said to have sunk in the western world." To the same purpose, Gibbon says, "that the favor Boethius is the lai of the Romans, whom Caesar or Tully would have acknowledged for their countryman." Fabr. Bib. Lat. tom. ii. p. 146, &c. Le Clerc. Bib. Choix, t. xvi. p. 163 — 275. Burney's Hist. Mus. vol. ii. p. 31, &c. Gibbon's Hist. Rom. Emp. vol. vii. p. 43, &c. Brucker's Hist. Phil. by Enfield, vol. iii. p. 313.

BOETTICHER, Gottlieb, a physician of eminence, and in considerable practice at Berlin during the early part of the last century, published various works on the theory and practice of medicine. The principal are, on the existence of a nervous fluid, "De vera fluidi nervorum existentia," Berlin, 1721, 4to.; "De morborum maligniorum, imprinis peptis et petitulentis explicatio," 4to. 1713; this has been several times reprinted. He contends that the plague is contagious; and that the infecting effluvia may be retained, and conveyed in full vigour, in the clothes or bedding of the sick, to distant countries; a doctrine that has been lately strongly opposed. Pregnant women, affected with the plague, constantly part with the fruit of the womb before they die. Hypochondriac psoriasis, he thinks, are not susceptible of the contagion. But in this he is probably mistaken; as we know lunatics do not enjoy such an exemption from contagious diseases in this country. He recommends bleeding on the first attack of the fever, and then to have recourse to绍orics. "De respirations festus in utero," 4to. 1703. Haller Bib. Med. et Anat.

BOEUF, Le, in Geography, a place in the north western corner of Pennsylvania, at the head of the north branch of French creek, and 50 miles distant by water from Fort Franklin, where this creek joins the Alleghany. The French fort of Le Beauf, from whence the place has its name, lies about two miles east from Small lake, which is on the north branch of French creek; and from Le Beauf, is a portage of 14 miles northerly to Preque ile in lake Erie, where the French had another fort. N. lat. 42° 1' W. long. 79° 55' 20".

BOEUR de Marais. The French call the common bitttern (ardea bellina), because it frequent marshes, and has a loud cry, and emits a sort of roaring noise that has been compared to that of an ox or bull, by this name. "Il n'y a," says Belon, "beuf qui puit crier ici haut."

BOEUR d'Afrique, in Zoology. By this name some French writers distinguish the buffalo; the epithet is misapplied, because that animal is equally common in India, whereas in Africa, it is suppressed, the African buffalo first originated.

BOEUR a Boeuf, synonymous with bufon. By some it is likewise called beauf des Inds.

BOEUR Guerir. Under this denomination the French describe a race of African oxen, which the Hottentots call backleys; the word backley in their language signifying war, to the purposes of which they are trained up, in the same manner as elephants are by the Indians. War oxen of this description are instructed also to guard the herds of the common oxen.

BOEUR de Mer, in Ichthology, is the name of the long-beaked ray, raja oxyrhyncha of Linnaeus.

BOEUR de Mer, in Zoology, the common French name for any of the Phocæ tribe of animals, corresponding with the general English name of sea-cow.

BOFFRAND, Germain, in Biog. phy. A celebrated French architect and engineer, was born at Nantes in 1667, and having been educated at Paris, he employed himself for some time in sculpture during the winter, and studied architecture in the summer. His talents at length engaged the attention and patronage of Hardouin-Mansart, an eminent architect, who obtained for him a place in the commission for the royal buildings. In 1709, he became a member of the Rey
BOG

Royal Academy of Architecture, and was much employed at Paris, and by several German princes, in furnishing designs for various edifices. His style of building was grand and noble, and formed after the model of Palladio. He was likewise a skilful engineer, and constructed a great number of canals, sluices, bridges, and similar works. As architect to the general hospital of Paris, he gratuitously served the institution; and, as he was disinterested in his temper, he was lively and amusing in conversation; and he indulged his taste for literature by the composition of several pieces, adapted to the purpose of producing temporary gaiety and mirth, for the Italian comedy. His "Book of Architecture," with plates, was printed at Paris in 1745, folio; and contains an account of the general principles of the art, exemplified in his own works. In this work he has also introduced a curious memoir, describing the method of casting the bronze equil-trian statue of Lewis XIV. He retained his gaiety of disposition to the age of 87 years, and died at Paris in 1755. Encyc. Hist. Gen. Biox.

BOFIN, Boffin, or Baffin, Lough, in Geography, one of those large lakes in Ireland into which the river Shannon expands, situated between the counties of Roscommon and Leitrim.

BOG, derived from the Italian buca, a hole, or rather from the Belgic buigen, to bend, on account of its giving way when trod upon, in Agriculture, a quaggy sort of earth, generally met with in low situations, covered with coarse grasses, but of so little solidity as to be incapable of supporting the tread of heavy animals; caused by the dilution, decay, and deposition of different vegetable and other substances, from the stagnation and detention of the water that oozes along on the clayey or other thin tenacious strata below, or which springs up through the fissures, or other openings of them. They are of different kinds, depths, and consistencies, according to the different circumstances of the case, and the nature of the situation of the ground on which they are formed, as well as that of the earthy material that enters into their composition. Dr. James Anderson, in his treatise on draining bogs and swampy grounds, remarks, that clay is a substance that strongly resists the entrance of water into it; but, when it is long drenched with water, it is in process of time, in some measure diffused thereby, losing its original firmness of texture and consistence, and becoming a sort of semi-fluid mass, which is called Bog. And as these bogs are sometimes covered with a surface of a particular kind of grass, with very matted roots, which is strong enough to bear a small weight without breaking, although it yields very much; it is in these circumstances denominated a sedge.

But whatever be the nature of the bog, it is invariably occasioned by water being forced up through a bed of clay, as just described, and diffusing or softening a part thereof. A part is only mentioned, because, whatever may be the depth of the bog or sedge, it generally has a portion of solid clay between it and the reservoir of water under it, whence it originally proceeds. For if this were not the case, and the quantity of water were considerable, it would meet with no sufficient resistance from the bog, and would of course, issue through it with violence, and carry the whole semi-fluid mass along with it. This would more inevitably be the case, if there was at first a crust at the bottom of the bog, and if that crust should ever be broken, especially if the quantity of water under it was very considerable. And as it is probable that, in many cases of this sort, the water slowly dilutes more and more of this under-crust, no doubt is entertained but that in the revolution of many ages, a great many irruptions of this kind may have happened; although they may not have been deemed of importance enough to have the history of them transmitted to posterity.

It has been remarked by Mr. King, in the Philosophical Transactions, No. 176, that the springs, with which Ireland abounds, are generally dry, or nearly dry in the summer time, and that grasses and weeds grow thick about the places where they built out. In the winter, he observes, they swell, run, and dry, and loosen all the earth about them. The sword or turf of the earth, which consists of the roots of grasses, being lifted up and made fuzzy by the water, at that season (he has seen it lifted up a foot or two at the head of some springs), is dried in the spring, and does not fall together, but withers in a tuft, through which arise new grasses, which is also lifted up the next winter. By this means the spring is more and more stopped, and the turf grows thicker and thicker; till at last, it makes the appearance which we call a quaking bog; and as it grows higher and drier, and the roots of the grass and other vegetables become more putrid, together with the mud and slime of the water, it acquires a blackness, and grows into that which we call a tufbog.

It is, however, confessed, that there are quaking bogs caused otherwise. When, it is observed, a stream or spring runs through a flat, the patination, if not kept open, fills with weeds in summer, trees fall across it and dam it up; then in winter the water stagnates further every year, till the whole flat is covered. Afterwards a corser kind of grasses flourishes up, peculiar to these bogs; this grass grows in tufts, its roots coalesce together, and its height increases every year, in some that he has seen it as tall as a man. This grass rots in winter, and falls on the tufts, and with it the feed, which sometimes up the next year, and so continues making an annual addition. Sometimes the tops of the flags and grasses are interwoven on the surface of the water, and this becomes by degrees thicker till it lies like a cover on it; then herbes take root in it, and by the matting of their roots, it becomes very strong, so as to bear a man. He has gone on bogs which would rife before and behind, and sink where he flood to a considerabledepth, under which was clear water.

It is further observed, that Ireland abounds in mofs more than any other country; this mofs is of divers kinds, and that which grows in bogs is very remarkable. The light spongy turf is nothing but a congrissy of the threads of this moss, before it be sufficiently rotten; the turf then looks white, and is light. It has been seen in such quantities, and so tough, that the turf-spades could not cut it. In the north of Ireland, they denominate it old-wives tow, being not much unlike flax. The turf-holes in time grow up with it again; and all the little gutters in bogs are generally filled with it. To this he chiefly imputes the red or turf bog; and from the same cause even the harden turfs, when broken, is friction, though there plainly appear in it parts of other vegetables; and he is almost, from some observations, tempted to believe, that the seed of this bog-moss begets heath, when it falls on dry and parched ground. However, the moss is so fuzzy and quick-growing a vegetable, that it greatly cheapens the蹿g, and contributes to thicken the turf, especially in red bogs, where he remembers to have observed this most particularly. The situations of land may sometimes contribute to the formation of bogs in it, as flat spots of ground lower than the level of an adjoining river or lake; for when that part is filled up by the flume and earth brought from the surrounding grounds, and the rotten plants and animals, which are buried in it, have choked it up, it will become a bog; and then the water will continue to flow into it from the river or lake, especially when either of these is swelled by a fall of rain or melting of snow. These waters may also sometimes have this
this effect, without a communication above ground, by seeping through a sandy or gravelly soil. And another cause that may contribute to the production of bogs, may be the fall of a number of trees, which, by occasioning a stagnation in the water brought down from higher grounds, may cause the deposition of much earthy vegetable, and other materials, and consequently the production of boggy appearances in the places where such obstructions are not with.

Bogs are distinguished by different titles, according to the nature of the circumstances under which they occur; as peat-bogs, quaking-bogs, spring-bogs, and turf-bogs. The first being that fort of bog which is principally composed of peat earth. The second such a kind of bog as, when trodden upon, affords an elastic kind of motion, or shaking under the foot. The third is such a bog as arises from the ozing or springing up of water through the fluff effects of materials on which it is formed. Mr. Elkington, the celebrated drainer, makes two classes of this sort of bog; the first of which is distinguished by the springs rising out of the adjoining grounds, in a regular line, along the upper side of the wet surface; while, in the latter, the number of springs that appear are not confined to one regular direction along the upper side, but burst out promiscuously over the whole surface, especially towards the lower side, forming quagmires all round, that shake and bend under the feet like a suspended cloth, over which it is dangerous for the lightest cattle to pass, and which flow themselves at a distance by the verdure of the graps, which the quags or spots immediately round the springs produce. The last is a fort of bog constituted of materials which partake of the nature of turf.

Wherever bogs are met with, draining is unquestionably the first step to be taken towards their improvement. For the full accomplishment of this purpose, Mr. Elkington's mode may in many cases be successfully resorted to, and with great and sudden effect; though the improver should not be too fainque in his expectations, or imagine that it is in every case an easy operation to free this sort of land from an excess of moisture. There are probably some bogs which cannot, without great difficulty, be drained at all; and others that would cost the value of the land, in drains and machinery, to effect such improvements in them. But notwithstanding unsuccessful trials may sometimes be made, the drainer ought not to be totally discouraged from further attempts, where there is a tolerable prospect of succeeding in the business at last; as the caies are no doubt very numerous, in which this sort of land may be effectually drained at an easy expense, and thereby brought from a state of mutiny to yield considerable profit to the owners and the public. See Draining of Boggy Lands.

It is observed in the appendix to Mr. Johnston's account of Mr. Elkington's mode of draining, that in the improving of bogs, after their being drained, as the great object is to get the ground brought to such a state, as to be fit for being laid down with grass seeds, when it may be considered in such a state of improvement, that any sublentuous crops will require no more than ordinary management to cultivate them, the first thing to be done, where they are extensive, is to have them divided into proper meloires by open ditches, by which means much surface water may be carried off, as well as by properly attending to the formation of the ridges and furrows in ploughing, and giving them a direction towards the open ditches, by which the rain or surface water may be discharged as it falls; and after this has been effected, to have the surface well levelled by means of the spade, as being in moll caies more effectual than by the plough. The better sorts of the materials thus removed may be mixed up with lime or other substances, and set upon the land; while those of the coarser kinds are made use of to fill up the inequalities on the surface. Paring and burning, where there is much coarse vegetable matter, may be practiced with advantage. In order to this, whatever earth remains unemployed, in filling up hollows, should be burnt, together with that taken out of the ditches, unless the latter has been already carried off for fuel. The greater quantity of ashes there is, the greater will be the improvement of the soil itself, and the more will the earth be benefited. The ashes, after being well incorporated with the soil by means of light or superficial ploughings, frequently to enrich it, as to produce excellent crops for two years or more. The effects of the ashes and burnt materials have been said, in some cases, to be incresced by the addition of a little lime. When the turfs have been reduced to ashes, spread over the surface of the ground, and turned in with a little furrow, turnips or potatoes ought to be the first crop. If the former, they may be sown broad-call, and led off by sheep, by the dung and urine of which the soil will be greatly benefited, as well as by the refuse of the plants, and the condensation produced by their treading upon it. It will then be in a state for a crop of oats or barley, which should be sown with grass-seeds, and well rolled down. The ploughing after the turnip crop, thus eaten off, should be very light, in order not to bury the enriching materials too deep; in which view oats ought to be preferred to barley. If the soil be full of the roots of rushes, weeds, and coarse plants, a summer fallow may be necessary before any crop be taken: and when the ashes have been made in a particular part of the field, they may be spread over the surface before the feed furrow is given, and the roots and tough clods, after being collected and burnt, may be spread along with them.

If the bog be very soft and deep of peat, so as not to admit horses for ploughing the first year, a crop of turnips broad-cast may be got by sowing the seed among the spread ashes, harrowing it in with a light harrow and roller drawn by men. This crop, being cut off as above, will leave the land the ensuing year so much consolidated as to admit the plough.

When the surface has not been pared and burnt, following for two years may be necessary to reduce the soil to a proper mould, in the last stage of which the lime or other manure must be applied. In this case two white crops, with an intervening one of turnips, potatoes, &c. may be taken before the grass-seeds are sown.

Boggy soil, of whatever kind, after being once broken up and pulverized by tillage and a course of fallow, should not be over-cropped before being laid down in grass; and when brought into a good sward of grass, should not be too soon broken up again, but continue so, by harrowing and top-dressing it when the herbage begins to moss. Repeated rolling is also necessary in such soils.

It is probably a better practice to feed sheep the first and second years of the grass, than to cut it for hay, as it causes the roots of the grass to strike more horizontally through the soil, and more closely to cover the surface. With this view a greater proportion of white and yellow clover, and other short grasses, should be sown.

In the manuring of soft boggy lands some caution is necessary; for, though the ploughings, previously to the application of the dung, may be made deep with advantage, the sublentuous furrows should be very superficial, and the dung regularly and uniformly blended with the soil; for, when this is not the case, it is apt to sink down too much, and be of little utility. The same thing takes place with respect to lime; and even when marble is buried too deep it is said to lose its power as a manure.
B O G.

On soft boggy ground, merely intended for pasture, nothing will produce a more rapid improvement than the application of a thin covering of marle. In order to this, the directions already given, with respect to paring and burning, should be observed.

Marle, which is often found under a gravel or clay, may also be of great service: but if a loamy earth be near at hand, it will, perhaps, be less expensive to the farmer to bring such earth to cover the bog, than it will be to dig up the clay. But of whatever kind the earth be which is laid upon the bog, the quantity should always be sufficient to cover its whole surface four, five, or six inches deep, according to the thickness of the soil so brought.

Sea-fand, as being frequently mixed with shells, is well suited to this purpose, if the boggy ground be situated near the sea, so that it can be easily procured. The great weight of these materials tends equally to consolidate the bog, and serves to smooth the surface from the spungy peaty earth; therefore the thicker they are applied the better. A slight sprinkling of lime over it will add to the effect, and bring up much white clover and other sweet grasses.

The most barren earths or soils, when used in this way, may have good effects; but lime-bone gravel, where it can be procured, is to be preferred to all others. After the land has been treated in this manner, and lain some years in pasture, it may be broken up for tillage, and crops of grain taken before being laid down with grass-feeding. By ploughing, part of the natural soil will be turned up, and intimately mixed with the earth, &c. that has been laid upon it, and, if lime or dung be added, will together form a very fertile mould. When boggy grounds are much over-run with rushes and other carole, four, aquatic plants, scarcely any thing tends more to the full part of its improvement than that of over-catching it with different sorts of cattic, as soon as ever it is sufficiently solid to bear them with safety; care must, however, be taken not to put them on till it is quite firm, as if that be done they will not only poach the surface, but the coarse herbage will remain without being eaten closely down. The practice of cutting the rushes frequently in their young and tender state, is also of considerable utility. By these means alone a better kind of herbage is speedily brought up, and much improvement produced.

Another considerable means of improving this sort of land, where the situation is such as to admit of it, or when it lies near the side of a large river or stream, of which, by means of proper dams and cuts, a command can be obtained, is that of floating it with water, a process that, when judiciously managed, never fails to produce abundant crops of grass. And that it is a mode of improvement well fitted to this sort of land, is evident from the effects that have been produced in different instances, and from the observations of Mr. Boswell, that it requires more and longer watering than any sandy or gravelly soil: the larger the body of water that can be brought upon it the better, its weight and strength will greatly affect in comprising the soil, and destroying the roots of the weeds that grow upon it; neither can the water be kept too long upon it, especially in the winter season, immediately after the after-math is eaten; and the sooner it is eaten the better. The manner of conducting the business of watering must be suited to the circumstances of the particular case.

After being thus improved, it must next be determined to what lasting purpose it may be best applied. The too great moisture of these soils, which always lie flat, renders them unfit for continued tillage, and their mould becomes so loose by frequent ploughing that it frequently does not afford sufficient fluidity to the roots of corn. For this reason barley, oats, and rye do better here than wheat, which requires a firmer footing; but neither of them should be sowed thick, because the fruitfulness of the soil will always make up in the size of the plants, what some might think wanting in their number. The most beneficial method of employing this sort of land is, undoubtedly, that of converting it into meadow, because, when thus prepared, and not injudiciously exhausted by crops of corn, it will yield great quantities of excellent grass. It is, however, usual to begin with sowing some kind of grain on this prepared surface, to indemnify the farmer by the plentiful crop which it generally yields; such, indeed, as sometimes defrays at once the whole expense of the improvement. In some cases the most profitable method may be to sow it in the autumn with rape, the leaves of which shading the surface in hot weather, and rotting in the winter, contribute greatly to mellow the earth; the strong roots of this plant open the soil too, and its seed brings a great return when sold for making oil. One or two ploughings after this will prepare it for a crop of wheat. After this is taken off, and the stubble turned down, white clover and grass-feed should be sown, and the ground laid down for a lasting meadow; or if turf and be sown, or cabbages planted in the autumn, these in the spring may be succeeded by barley, with which the grass-seeds may be sown.

In a rude moory or black peat boggy improved lands, Mr. Marshall remarks, that what is most desirable is a crop that is sown and reaped during the summer months, and which demands neither labour nor attendance in the humid seasons of autumn, winter, or spring; and such a crop is found in rape, which is luckily natural to the climate, and at the same time highly profitable. Trials with this may be made at but a trifling expense on a small portion of the ground, the proof of which answering, it is observed, is not whether the plant will thrive as herbage, but whether it will mature its seed on the given soil in the given situation.

After a recumence has been obtained by crops of this sort, which may be repeated, as there is no danger of exhausting such deep soils, the foundation of more lasting profits is to be laid; which may be effected by sowing grass-feeds, with or over the rape crops, or after the flax have been drawn, according to seasons and the circumstances of the land, lodging, as directed above, till such time as the surface becomes sufficiently firm, and the soil has attained a suitable texture for mixed cultivation, which time may be much shortened by the application of suitable sublunaries of the calcareous kind in any period of the improvement.

When either through necessity, or want of other arable land, or out of choice, the farmer intends to continue ploughing his improved bogs, the surface must be raised in ridges, and the further management of it may be like that of most other ploughed grounds.

If a soil of this kind happens to be situated near a town, a greater profit may accrue from planting it with garden fruits than from any fort of grain, as beans, peas, cabbages, potatoes, turnips, carrots, &c. are found to thrive exceedingly well in earth of this kind.

Bog, moving or migrating. These soft marshy earths have been sometimes known to move out of their place. An instance of this there was in Ireland, in the year 1697, about Charleville in the county of Limerick. There was heard for some time a noise under ground like that of thunder at a great distance, or almost spent; and soon after this the earth of a large bog in the neighbourhood began to move, and a hill or ridge situated in the middle of it banked no longer above the level of the soil, but sunk flat. The bog not only moved itself, but carried with it the neighbouring pastures.
Islands, though separated by a large and deep ditch; the motion continued a considerable time, and the surface of the moving earth rose into a sort of waves, but without breaking up or burrying any where. The palstire land rose very high, and was covered with the same motion till it rested upon a neihbouring meadow. The whole surface of which it covered, remaining sixteen feet deep upon its surface. The whole quantity of the bog was torn from its former seat, and left great gaps in the earth where it had joined, which threw up foul water, and very looking vapours. Phil. Trans. N. S. 233. The whole country came in to see the strange sight as this, for it continued moving a long time; but few noticed the true caule of it, which was this: a more than ordinary wet spring oceasioned the raising of the bog to a great height in one part, and thence propagated itself through the whole bog; so that the hill in the middle was undermined, and naturally sunk flat; this and the more ordinary weight of this large bog proffed upon the adjoining palstire-land, forced up its foundations, which were only a loose sand. This was pushed on side ways, where there was a dissect from the bog, and at length having given the bog more room, all was quiet and remained in that state. The bog was more than forty acres of ground.

Another instance of this kind occurred, in March 1745, at the bog of Alderground, about a mile and a half from the town of Dunmoo, in the county of Galway. In consequence of a violent storm, attended with a fall of rain, resembling a water spout, the turby, which the turf cutters had just left, containing about twelve acres, was put into motion, and floated till at last it subsided upon a piece of low pallure of near thirty acres, by the side of the river, where it spread and settled. The moving-bog choked up the river, which consequently overflowed the back grounds, and in a little time a lough or lake of near 57 acres covered the adjacent fields. A paigeage for the river was formed as speedily as possible; but before it could be finished, and the lake discharged, it was supposed to have covered 300 acres; however, in seven or eight days it gradually decreased to 50 or 60 acres, of which extent it continued. Irish Transact. vol. ii. p. 4.

Bog, ancient Hypanis, in Geography, a river of Poland, which rises in Podolia and joins the cituary of the Dnieper or Nieper, a little above Ozakov, about N. lat. 46° 43' E. long. 32° 32'. This river separates Poland and a portion of European Turkey from Russia. By taking up the Ingul, the Simuch, and the Gulon, befores other streams in its course, it becomes a very considerable river.

Bog bean, in Botany. See Menyanthes.

Bog berry. See Vaccinium.

Bog moss. See Sphagnum.

Bog bay. See Schoenus.

Bog wood. See Wood subterraneus.

Bog ore. See Iron.

Boga, in Ichthyology, synonymous with Bogus, and Sparus bogos.

BOGAERT, Martin Vanden, surnamed Desjardins, in Biography, an eminent sculptor, was born at Breda, in Holland, in 1648, and settling in early life at Paris, he became a member of the Royal Academy, at the age of 31 years. The art of his most considerable works was an equestrian statue of Louis XIV. erected at Lyons in the place Bellecour. He also adorned the gate of the church of the Malzarin college with six groups of stone, representing the evangelists and the Greek and Latin fathers of the church; and besides many other works, the most distinguished was the monument erected in the place of Victory, at the expense of

BOG, in Doctrine, a tree held sacred in Ceylon, on account of the imagined preference given by the deity Buddha to the shade of this tree, above all others. Wherever it is found throughout the island, persons are appointed to watch over it, and preserve it from hurt or injury. It is held in the same estimation among the followers of Buddha, as the banyan tree is among the Brahmins. The Can- dians hold their great festival under the shade of a tree of this kind, which stands at Amaramburro, an ancient city in the northern part of the island of Ceylon's dominions; and none but his own subjects are permitted to approach this sanctuary. Tradition says, that the bogha tree suddenly flew over from some distant country and planted itself in the spot where it now stands. It was intended as a shelter for the god Buddha, and under its branches he was wont to repose, while he journeyed on earth. Near this hollowed foot 99 kings are interred, who all marked admittance into the regions of the skies by the temples and images they constructed for Buddha. They are now sent as good spirits to preside over the safety of his followers, and protect them from being brought into subjection to Europeans; a calamity against which they continually pray. Around the tree are a number of huts, erected for the use of the devotees, who repair hither: and as ever fort of fish and dirt must be removed from the sacred foot, people are retained for the purpose of continually sweeping the approaches before the worshippers, and to attend the pious during the performance of the ceremonies. Percival's Ceylon.

BOGANEU, in Geography, a town of Bohemia, in the circle of Chrudim; 6 miles S. of Chrudim.

BOGAR. See Bokhari.

BOGAROVSKOJI, a town of Siberia, 165 miles N. of Tobolik.

BOGAS, or Boghas, a small town of Egypt, at the mouth of the Nile; 3 miles N. of Damietta. See Bogass.

BOGATOI, a town and district of Russia, in the government of kurak, lying on the rivulet Panna, falling into the Piel; 48 miles S.S.W. of Kurfik.

BOGAI, a town of Asiatic Turkey, in the country of Diarbekir, 50 miles W. of Diarbekir.

BOGAZI, signifying in the Turkish language a "canal," or a "fray," a name given by the Turks to two braids, adjoining to the island of Samos; one, called Little Bogazi, and scarcely half a league broad, separates Samos from the continent of Asia; the other, called the Great Bogazi, and nearly two leagues broad, lies to the west, and separates this island from the small Fournis islands, famed for the copper, which, at a distance, they appear like the roofs of ovens; they were anciently called "Corces infus." This is a passage frequently much frequented by ships falling from Constantinople to Syria and Egypt, and they find here good anchorages.

BOGDAN, a town of European Turkey, in Moldavia, on the borders of Transylvania; 60 miles S. of Niemecz.

BOGDEN, Martin, in Biography, a favourd pupil of T. Bartholomae, and eminent painter of picture, was born at Dresden, about the year 1638. After visiting France, England, and other parts of Europe, to improve himself in knowledge, he took the degree of doctor in medicine at Basel in Switzerland, in 1652, and at the
end of four or five years, passed principally with Bartholine, to whom he was strongly attached, he settled at Bern. His works are principally controversial, defending the priority of the discovery of the lymphatics by Bartholine, against Rudbeck the Swede, who claimed it; and who, if he did not discover them, Haller says, has the merit of having more fully and accurately described them, than Bartholine had done. Bogden, in this context, displayed much learning, but equal roughness and ill-humour. The titles of his works are: "Rudbeckii infimae structurae vasorum lymphaticorum Thomas Bartholini," 1740, and "Apologia pro vasorum lymphaticiorum Bartholini, adversus infimam structuram abolit Rudbeck." Haller, 1754, 2 vols. "Simeonis Seth, de alimentum facultatibus," Gr. and Lat. 8vo. 1768. "Observationes Medicas ad Thomam Bath." The observations, 12 in number, are published in the "Culter Anatomicus," of Lyser; Copenhagen, 1665. Haller Bib. Anat. Ely. Dict. Hist.

BOCKIKOTZ, in Geography, a town of Russian Siberia, on the Tchulim; 6 miles N.W. of Atchinsk.

BOGINSKII, or BOGDOM DABANS, an inexhaustible salt-plate of Siberia, in the steppe towards Tzaristin; the salt of which, according to Pallas, is better than that of the Elton.

BOGDO, GREAT; the highest mountain of central Asia, according to the reports of the Monguls and Tartars, is properly a central summit of the Altai chain of mountains, which gives source to the Upper Iriish, and seems to be delineated in Arrowsmith's map of Asia at longitude 94°, and latitude 47°. See Altai and Belur.

Bogo, Little, is a mountain of Abatic Russia, lying to the north of the Caspian sea, near which is a salt lake of the same name.

BOGDOMANTIS, in Ancient Geography, a country of Asia Minor. Polonmy.

BOGDON, in Geography, a name given by the Russians to the Manchews, or Mandshurs, who inhabit the eastern part of Chinese Tartary, an extensive and populous district N.N.E. of China, and who are subject to the Chinese empire. See Mandshurs and Chinese Tartary.

BOGENSEE, a town of Denmark, in the island of Funen; 12 miles N.W. of Odeneke.

BOGSEUND, a small town of Sweden, in West Gothland, 4 leagues S. of Falkoping.

BOGIKLUND, a district or cirque of Allahabad, in Hindooistan, situated west of Benares.

BOGGY CREEK, a creek of America, which rises among the eastern branches of Poplar creek, and empties into the Tennesse; just above the Muscle shoals. Hurricane creek is a branch of Boggy creek.

BOGHASS, a canal or branch, so called in the language of the country, at the mouth of the western or Bolistic branch of the Nile, now called the branch of Rosetta. This passage is not navigable through its whole width; there being only a narrow channel, which, owing to the instability of the bottom, and the agitation of the sea, is continually shifting. A pilot or master of the Boghass is continually employed in sounding this changeable passage, and giving directions to those who navigate it. The increasing danger of this passage led to the operation of cleaning the canal of Alexandria, and thus to facilitate the communication between Alexandria and the rest of Egypt. See Bogas.

BOGIA. See BOUJIAN.

BOGILLANA. See BOGLANA.

BOGLIASCO, a town of Italy in the state of Genoa, near the sea-coast; 6 miles E. of Genoa.

BOGLIO, or BEVIL, a mountainous territory of Italy, in the principality of Piedmont, and county of Nice, celebrated near the Alps; its chief place has also the same name. This country was surrendered to France in May 1796.

BOGLIPOUR, a town of Hindooistan, capital of a province in the country of Bahar, near the Ganges; 35 miles S.E. of Monghir, and 115 N.W. of Murshidabad.

BOGLORAY, a town of Poland, in the palatinate of Sandemir; 24 miles E.S.E. of Sandemir.

BOGMUTTY, a river of Hindooistan, which runs into the Ganges near Monghir, in the country of Bahar.

BOGNOR, or HOUGHTON, (as it is sometimes called in honour of its founder,) is a pleasant retired hamlet on the southern coast of England, in the county of Sussex. This place has only risen into notice within a few years, being, previous to 1750, merely inhabited by a few fishermen. About this period Sir Richard Hotham purchased some ground here, where he built a house for himself, and had others erected for the accommodation of bathers. His plan of making this a fashionable bathing place has succeeded, but it was not much frequented till after his death, which happened in 1790. Soon after this event, the ground and houses were sold in different lots. Some of the purchasers have built additional dwellings, and Bognor is now become a place of great resort during the summer months. The adjacent villages of Birted, Felpham, &c. also receive a number of summer visitors, who resort to this coast for the purpose of its fine beach and mild air. Bognor is 7 miles S. of Chichester, and 67 S.W. from London. It has a good hotel, an assembly-room, a library, and some other establishments for the accommodation and amusement of its visitors.

BOGODUKHOF, a town and district of Russia, in the government of Kharkov, seated on the Merlo, falling into the Vorkla; 84 miles N.N.W. of Kharkov.

BOGOS, See Borg.

BOGOKNOT, a town of the island of Corfica, 5 leagues N.E. of Ajaccio.

BOGOIAVLIENSKIO, a town of Russia, in the government of Ufa; 48 miles S. of Ufa.

BOGOIALAVLIESNSKIO, a town of Russia, in the government of Archangel, near the coast of the White Sea; 72 miles S.W. of Archangel.—Also, a town of Russia, near the river Onega, 180 miles S. of Archangel.—Also, a town in a small government, on the Pigea; 70 miles E. of Areangel.—Also, a town of Russia, in the province of Uving; 57 miles E.N.E. of Uling.—Also, a town of Siberia, on the Tchulim; 80 miles E.N.E. of Tomsk.

BOGOMILI, or BOGARMIT, in Ecclesiastical History, a seat sprung from the Manichaeans, or rather from the Malalians, towards the close of the eleventh century; whose chief, Balil, was burnt alive by order of the emperor Alexis Comnenus. Being condemned to be burnt, he declared that the fire would not hurt him; upon which the Greeks who carried him to execution, first took off his cloak, and flied it into the fire, to try whether it would prove incombustible; whilst it was burning, the poor fanatic cried out, "Do you not see that my cloak is un touched, and carried away in the air?" upon which they call him also into the fire, where he was soon consumed to ashes. Du-Cange derives the name from two words in the Bulgarian language; Bog, Deus, and milvel, miserere, have mercy. The Bogomili denied the Trinity; maintaining that God had a human form; that the world and all animal bodies were created by evil angels; and hence they concluded, that the body was the prison of the immortal spirit, and that it ought to be enervated by fasting, contemplation, and other exercises, so that the soul might be gradually refixed to its primitive liberty; and that wedlock
BOG

was to be avoided; and they also maintained that it was the archangel Michael that became incarnate. They rejected the books of Moses, and only admitted seven books of jurisprudence; they maintained the Lord's prayer to be the only eucharist; that the baptism of the Catholic was only that of St. John, and their's that of Jesus Christ; and that all those of their sect conceived the Word, or Logos, as much as the Virgin, denying the reality of Christ's body, which they considered only as a phantom. They also held, that the body, upon its separation by death, returned to the malignant mals of matter, without either the prospect or the possibility of a future resurrection to life and felicity. Moshi. Eccl. Hist. vol. iii. p. 110. Jortin's Rom. on Eccl. Hist. vol. vi. p. 46.

BOGORODSKOI, in Geography, a town of Ruffia, in the government of Archangel; 8 miles S. W. of Mezen.

BOGORODITZK, a town of Ruffia, in the government of Archangel, on the Dwina; 44 miles S. S. E. of Archangel.

BOGORODSK, a town and district of Ruffia, in the government of Moscow, on the Kinafa; 28 miles E. of Moscow.

BOGORODSKOI, a town of Russian Siberia, in the province of Tomki, seated on the Obi. The church belonging to this town is famous for a celebrated picture of the Virgin Mary, called "Orchidita," which is brought every year, on the 21st of May, in procession to Tomik. There are iron works in this place.

BOGOROSTAN, a town and district of Ruffia, in the province of Ufa, seated on a river falling into the Samara.

BOGOTA, a town and province of New Granada, in Spanish South America, seated near the river Magdalena. The town is called Santa Fe de Bogota, and is the capital of the kingdom of New Granada; it is seated on the banks of the small river Pati, which runs into the Magdalena. It was made an archbishop's see by pope Julius III. in 1554, and an university was erected here in 1610. It has a sovereign court of judicature, the president of which is governor of the whole province or kingdom of New Granada. Near it are some gold mines, and the chief modern mines of Peruvian emeralds, justly preferred to all others, since those of Egypt have been neglected. Among the numerous cataracts of this country Bouguer mentions that of the river Bogota, which passes the city of the same name about 8 leagues before it joins the Magdalena, said to be a vertical fall of more than 1200 feet. N. lat. 4° 20'. W. long. 73° 40'. When the Spaniards took possession of this part of South America, they found in Bogota a nation more considerable in number, and more improved in the various arts of life, than any in America, except the Mexicans and Peruvians. The people of Bogota cultivated chiefly by agriculture. The idea of property was introduced among them, and its rights secured by laws, handed down by tradition, and observed with great care. They lived in large towns; they were decently clothed, and their houses, compared with those of surrounding tribes, might be termed commodious. Government had assumed, in this state of civilization, a regular form, and a jurisdiction was established, which took notice of different crimes, and punished them with rigour. They were acquainted with the distinction of ranks, and their chief reigned with absolute authority. He was attended by various officers and guards, carried with much pomp in a fort of palanquin, and the road was swept before him and furred with flowers. For the support of this expense taxes were levied on the people, who regarded their prince with veneration, and seldom approached him but with an awed countenance. One of the chief causes of that obsequious spirit, which prevailed among the people of Bogota, was the influence of superstition. The respect they paid to their monarchs was inspired by religion; and the heir apparent of the kingdom was educated in the innermost recedes of their principal temple, under such austere discipline, and with such peculiar rites, as tended to fill his subjects with high sentiments concerning the sanctity of his character, and the dignity of his station. This superstition, which, in the ruled period of society, is either altogether unknown, or waifles its force in childish meaning practices, had acquired such an ascendant over those people of America, who had made some little progress towards refinement, that it became the chief instrument of bending their minds to an untimely servitude, and subjected them, in the beginning of their political career, to a delusory hardly less rigorous than that which awaits nations in the last stage of their corruption and decline.

The people of Bogota (as well as the tribe of the Natchez) had advanced beyond the other uncultivated nations of America, in their ideas of religion, as well as in their political institutions. The sun and moon were the chief objects of their veneration. They had temples, altars, priests, sacrifices, and that long train of ceremonies, which superstition introduces wherever she has fully established her dominion over the minds of men. But the rites of their worship were cruel and bloody; they offered human victims to the deities and many of their practices resembled the barbarous institutions of the Mexicans. Robertson's Hist. America, vol. ii.

BOGRA, an uncultivated mountainous tract on the north of the barony of Mullery, in the county of Cork, and province of Munster, Ireland. It is upwards of ten miles long, and in some parts six miles in breadth; and is a common to the adjacent estates. In winter it is for the most part deep, marshy, and impassable; but in summer hard and firm, producing grass and heath, and is then grazed by vast herds of cattle, which are removed to the lower lands when this season is over. Large quantities of turf are also procured from it. Dr. Smith has applied to it these lines of Thomson:

"The brown burnt earth
Of fruits and flowers, and every verdure spoiled,
Barren and bare, a joyless dreary waste
Thin cottaged; and in time of trying need
Abandoned."

Many considerable streams flow from this high and wild tract, which discharge themselves into the Lee or Blackwater, as their direction is south and north. Smith's Cork.

BOGRUSH, in Ornithology. The Motacilla Schrenkianus, Linn. and Red Warbler of Latham, is described under this name in the Arctic Zoology.

BOGUE, in Ichthyology, the French name of a fish of the Sparus genus, Sparus boops of Linnaeus.

BOGUE, Bely, in Mythology, the white god to whom the Slavonians paid their adorations. His face, smeared with blood, was covered with flies. His rites consisted in diversions, games, and feasts. He was a beneficent deity, corresponding to the good principle, the "Oromazes," of the Persians. "The black god, " Thohery Bogue," corresponded on the contrary to the evil principle, the maleficent being Arimanis. He was worshipped by bloody sacrifices, and the prayers of his votaries were addressed to him in a mournful and plaintive voice.

BOGUSLAW, in Geography, a town of Poland, in the palatinate of Kivioia; 32 miles S.E. of Bialacriew. N. lat. 49° 30'. E. long. 31° 12'.

BOGUTCHAR, a town and district of Ruffia, in the govern-
government of Varazet, on a rivulet of the same name, falling into the Dan. 

BOGWANDOT, a town of Hindooslan, near the Ganges: 12 miles N. of Moorheadshah.

BOHABOL, in Ancient Geography, a town of Aisa in Sylva.

BOHADCHIA, in Botany. See Peltaria.

BOHAIN, in Geography, a town of France, in the department of the Arlar, and chief place of a canton, in the district of St. Quentin; 10 miles N. of St. Quentin. The place contains 2152, and the canton 13,818 inhabitants. The territory comprehends 1725 square kilometres, and 14 communes.

BOHAR, in Ichthyology, a species of Scilena, described by Forbkal, as a native of Arabia. The colour is red, lined, and clouded with white. Forke, Fn. Arab.

This bears a strong affinity to another fish described by the same writer, as an inhabitant of the same country, Kafimira. Gmelin expresses a doubt whether it does belong to the Scilena genus. The body is of an oblong form, and covered with smooth scales. When alive there are two large spots on the back, which disappear after the fish is dead. There are two short cirri, or bristles before the nostrils; in the upper jaw two subulate teeth, which project beyond the lower, the two middlemost of which are placed remote. The lateral line runs nearer to the back. Dorsal and anal fins rounded behind, and the armed part of both, the spines of the latter growing gradually larger; vertical connected by an intermediate membrane. Tail bifid. Gmelin.

BOHAROWCZE, in Geography, a town of Poland, in the palatinate of Kamnitz; 60 miles N.W. of Kamnitz.

BOHIDANGUE, a town of Bohemia, in the circle of Chrudum, which has the privilege of holding fairs.

BOHEA, in Botany. See Thea.

BOHEMIA, in Geography, called in German Boisheim, Bohein, Bohein, and corruptly Bohemian; that is the habitation of the Boi (see Bohi), a kingdom of Europe in the Austrian dominions; bounded on the north by Milania, Lofaitia, and Sileia; on the west, by the circle of the Erzgeber, the Voghtland, the marginiate of Cupmbach, and the Upper Palatinate; or, in general, by Francemia; on the south, by Bavaria and Austria; and on the east, by Moravia, Sileia, and the county of Gintz. Bohemia is environed on all sides with high mountains and large forests; towards the south it is separated from Austria by a ridge of considerable elevation, which passes to the north-east of Bavaria; and on the north-west, it is parted from Saxony by a chain of metallic mountains, called the Erzgeber, a word denoting hills that contain mines. On the west of the river Eger, near its junction with the Elbe, stands the mountainous group of Mileflou, near which is Donncberg, supposed to be the highest in the province; and on the north-east is the Sudetic chain, which branches from the Carpathian, and divides Bohemia and Moravia from Sileia and the Prussian dominions. This country was formerly remarkable for an extensive forest, a remain of the ancient Hercynia Sylva, which extended from the Rhine to Sarmitia, and from Cologne to Poland. The Gabreta Sylvai lay on the south-west of the same county, where a chain of hills now divides it from Bavaria.

Bohemia, as we have already observed, derived its name from the Boi, who under their leader Segoveus, settled in that country about 590 years before the Christian era. The Boi were soon after expelled by the Marcomanni; and these, being weakened by their wars with the Romans under the conduct of Tibérius, were subdued by the Scavi (see Sclava). Bohemia, as we have already observed, derived its name from the Boi, who under their leader Segoveus, settled in that country about 590 years before the Christian era. The Boi were soon after expelled by the Marcomanni; and these, being weakened by their wars with the Romans under the conduct of Tibérius, were subdued by the Scavi (see Sclava).

VOHIANI), who, like the other Scythians, wandered from place to place with their families and cattle; and, as Strabo informs us, even in the time of Augustus Caesar, lived promiscuously with the Thracians. Afterwards, foreseeing themselves well, in a few centuries they posish-d Millium, Poland, Moravia, and Bohemia. But retaining their ancient manners, they neglected to build cities; and inhabiting the country in detached hordes, they regarded only pasturage and the care of their flocks. The first ruler, or chief, mentioned by historians, was one Czechus, from whom the nations derived the appellation of Czechs, or Czechs, who, quitting Croatia, migrated first to Moravia, and from thence to Bohemia, about the middle of the sixth century, which he founded covered with wood, and puffed rather by herds of wild cattle than by men. Here he settled his final colony, and taught the few inhabitants of the country to cultivate the land, and to sow corn. After his death, the Bohemians remained for several years without a ruler or judge; but being now assembled in villages, they were anxious to obtain a more settled form of government than that which they had found eff. Dual during their pastoral life. With this view they chose for their governor a young man, whose name was Croc, distinguished by his prudence, who restored peace and order, and maintained the authority of the laws. He was succeeded by the youngest of his three daughters, Lybulla, who was respected for her skill in the art of divination; and who, about the close of the seventh century, married a country labourer of the name of Premilianus, who, being called from the plough to the dignity of governor, carried his cloak and shoes along with him, as memorials for his posterity, to prevent their being clathed with the propriety of their condition. This Premilianus is said to have founded the city of Prague, to have distributed the people into different ranks, and, after quitting some temporary intercommunications, to have reigned peacefully till his death. He is said to have been the first duke, though others trace the origin of the ducy to an earlier period, and say that Czechus was the first who bore this title. The government seems afterwards to have continued hereditary in his family, though with some form of election, and a descendant, whose name was Borrorious, or Borzivora, embraced Christianity about the close of the ninth century, and, after some opposition, introduced it into his dominions. On this occasion several churches were built, and schools erected; but upon the death of his son Wratifias I. in the beginning of the tenth century, his wife Drahomira, who assumed the government during the minority of her sons, manifested her hatred against the Chalians, massacred about 900 of them in one night, burnt their temples, and ordered them to deliver up their arms. However, upon the accession of her son Wenceslaus II. A. D. 916, the Christian religion was again encouraged; and, in order to prevent disputes with his brother Boleslaus, who had been educated under his mother, he acceded to that part of Bohemia, which lay beyond the Elbe. Wenceslaus, having obtained a victory in a duel, a challenge to which he accepted for the purpose of sparing the lives of his rebellious subjects, was invited by Otho the Great to the diet at Worms, where he offered him the title of king, which Wenceslaus declined accepting. In the year 935, Wenceslaus was murdered by his brother Boleslaus I. surnamed the Cruel, who, succeeding him, conducted his administration with great cruelty, percuting the Chalians, and expelling them the kingdom. His son and successor Boleslaus II. surnamed the Pious, founded and endowed 200 churches, and obtained leave from pope John IX. to create a bishop at Prague. His subjécts formed a conspiracy against him, on account of some reforms which he attempted to introduce;
BOHEMIA.

...and encamping on a mountain in the vicinity of Prague, they were expelled thence by the Christians, with the assistance of the Jews, and obliged to remain in peace. In recompense of this service, the Jews were allowed to build a synagogue at Prague. In the eleventh century, Brehovlus, the son of Ulrichus, having obtained the government of Moravia, kept possession of it by repelling the Poles who invaded it; and, succeeding to the government of Bohemia, on the death of his father, A. D. 1043, he again defended it against Hungarian robbers, by which it was ravaged, and having concluded a perpetual peace with Casimir, king of Poland, he died, leaving five sons, of whom the eldest inherited Bohemia; and Moravia was divided among the four youngest. Wenceslaus II. succeeded his brother, A. D. 1061; and, in 1086, was honoured with the regal title by the emperor Henry IV., who also invested him with the domains of Lusatia, Moravia, and Silesia. This dignity, however, was merely personal; and the constant title of king only commences with Premislao II., in 1199. He and his immediate successors, were styled Otto- cari, or Othogari, on account of their attachment to the interest of the emperor Otho. 

Upon the death of Wenceslaus IV. A. D. 1275, his son Premislao Othogar succeeded him, and having settled his affairs in Bohemia, took possession of Austria, Stiria, part of Carnitia, and other provinces to the south, and carried his arms into Prussia for the defence of the Christians; and having defeated his opponents in several engagements, he prevailed on many of the people to abandon Paganism. After his return to Bohemia, in 1274, he is said disdainfully to have rejected the imperial crown, which was afterwards given to Rudolph, count of Hapsburg; but Othogar refusing to do him homage, and to take from him the investiture of his states, alleging that he owed him nothing, and that he had paid him his wages, Rudolph having been a great friend of his court, was at length obliged to comply, and to deliver five fiefs to the emperor for the five fiefs which he possessed. A reconciliation, however, afterwards took place, and Othogar received the investiture of Bohemia and Moravia, on condition of reviving Austria, Carnitia, and Stiria. Wenceslaus V. succeeded his father in 1293, and was elected king of Poland, but refused the crown of Hungary, that was offered him in favour of his son, in 1300. The policy of his government failed; and John, the son of the emperor Henry VII., of the family of Luxemburg, who had married the youngest sister of Wenceslaus VII., obtained possession of the kingdom of Bohemia. John, having restored Bohemia to his son Charles, and procured for him the imperial dignity, proceeded with him to France, to the eclipse of Philip against the English, and was slain in the famous battle of Crecy, in 1346. Charles IV., emperor, having succeeded his father, erected his brother John marquis of Moravia, erected an university at Prague upon the plan of that at Paris, and engaged pope Clement VI. to erect the see of Prague into an archbishopric, and other privileges annexed to it, that the archbishop should have the honour of crowning the king of Bohemia. He enlarged and beautified his capital, by adding what is called the New City, in which he founded the college of Carleman. With the assistance of several learned persons, he reduced the laws of the kingdom to writing, which are still extant under the name of "Carolina Constitutiones." He greatly extended the boundaries of his hereditary dominions, and caused his son Wenceslaus to be crowned king, in the second year of his age. He also prevailed with the electors to choose him king of the Romans, in the sixteenth year of his age; and having commenced the junction of the Mohaw with the Danube, he died before he had executed his design; and in 1378, was succeeded by his son Wenceslaus VII. In the reign of this prince, who was notoriously dissolute, profligate, and licentious, and who, by his licentiousness and cruelty, incurred the hatred of his subjects. John Hufa and Jerome of Prague introduced the doctrines of the reformation into Bohemia. See HUS, and JEROME. Wenceslaus died suddenly in 1439; and before his brother Sigismund, who succeeded him as king of Bohemia and emperor of Germany, could come from Hungary to take possession of the crown, the Hufites, under John Zdes, had acquired great strength, and, upon a his approach to the kingdom, they first deputies to him, defining liberty of conscience; but, instead of granting their request, he only declared, that he intended to govern the kingdom as his father had done. A civil war ensued, in which the troops of Sigismund sustained several defeats; and which, after a continuance of fifteen years, concluded by his retreat of faith to Hufa and Jerome, terminated in mutual conciliations, and in his admission to Prague with great solemnity and rejoicing. Upon the death of Sigismund, in 1438, Albert of Austria, who had married his daughter, received the crowns of Bohemia and Hungary. The succession was, however, afterwards disputed and infringed by George Poudobrad, a Hufite chief; by Uladislao, son of Casimir, king of Poland; and by Matthias, king of Hungary. Uladislao ultimately succeeded, being elected, in 1471, by the majority of the electors, and soon after receiving the investiture from the emperor. Upon the death of Uladislao, in the 45th year of his reign over the Bohemians, and the 23d over the Hungarians, he was succeeded by his son Lewis in both the kingdoms of Bohemia and Hungary, A. D. 1516; but, in 1526, he engaged the Turks at Mohatz, and being utterly defeated, was drowned in the Danube, in his flight. After the death of Lewis, his dominions fell to Ferdinand, archduke of Austria, infant of Spain, and afterwards emperor, who had married Anne, the only daughter of Uladislao; and both the empire, and the kingdom of Bohemia, have ever since continued in the house of Austria. Ferdinand, at a diet of the electors held in 1547, declared the kingdom hereditary and absolute; and when Ferdinand II., in 1625, had routed the army of his rival Frederick at the White Mountain near Prague, Bohemia was declared to fall solely to the condition of an hereditary kingdom, so that from that time the electors had no concurrence with the right of succession. The crown, however, is conferred with some appearance of election, which right the electors of that kingdom pretend to claim; although, by the treaty of Westphalia, Bohemia is declared hereditary in the house of Austria. The king of Bohemia is the full feudal, and as such pays homage to the emperor and the empire for his fiefs; and with this exception, he has a right to exercise, through all his dominions, the royal authority agreeably to the laws of the kingdom, which prohibit his raising contributions or taxes otherwise than at the time when the fiefs are assessed, the appointment of which is entirely in their own power. He gives his opinion as elector, after the elector of Cologne, and formerly affixed at the assembly of the electors only at the election of an emperor, nor did he appear always at the diets of the empire. He is arch-butter, or arch-custos-boter, of the holy Roman empire; and on this office, his right to choose a king of the Romans is said to depend. It has been alleged, that Bohemia has been of old time a genuine state of the German empire, without contributing to its taxes, which was a privilege conferred upon it by Frederick II., in 1217, who at the same time exempted it from the jurisdiction of the supreme judiciary of the empire. In 1703, it was acknowledged by the three colleges of the empire, at an act of the diet called "the admission," that the king and elector of Bohemia has an undoubted right of seat and voice in all its assemblies; in consequence of which the emperor promised...
ruled, that on account of his hereditary kingdom of Bohemia, and of the countries belonging to it, he will pay an electoral proportion of all taxes and imposts of the empire and circle, and also 500 florins yearly to the chamber-judicators; the collective body of the empire engaging at the same time to take the kingdom of Bohemia, and the countries united with it, under its protection and defence.

Bohemia, ever since the time of Charles IV., has been divided into twelve circles, besides Prague, which is considered as a distinct territory. These are Kauzimer (comprehending Great Prague), Pilnitz, Leutmeritz, Koniggratz, Rakownik (including Broum), Chrubinski, Prachiner, Sia-ner (comprehending Little Prague), Bunsflauer, Sazters, Czafiauer, and Bechin. Each circle has two head-men, or captains, appointed annually, for the administration of the government, one from the file of lords, and the other from that of knights. The Duchy of Sileia, the marquisate of Moravia, and that of Lusatia, formerly held by this crown, but at present only Moravia, which is incorporated with the kingdom of Bohemia, and is in possession of the house of Austria. In 1742, the county of Glarz was ceded to the king of Prussia, and by him added to Sileia. The government of Bohemia is managed by six different courts; viz., the council of the regency, or great royal council, in which preëdies the great judge or burgrave of Bohemia, who has under him 18 lieutenants of the king's and other subjects; the council, or superior chamber of justice, at which the great matter of the kingdom is presided; the chamber of lieutenants of the new tribunal, to judge the appeals of the German vassals, with its president, vice-president and affifiers; the royal chamber of finance, with a president, and vice-president; and the chancery, which always follows the court. The states, consisting of the clergy, nobility, and gentry, and representatives of the towns, met at Prague, where a commissioner from the sovereign points out the necessity of granting such supplies as the court demands, which, however exorbitant, are granted without hesitation or examination, though not sometimes without subsequent complaint. The clergy are composed of the archbishop of Prague, several bishops, provosts, and abbots, besides the inferior clergy. The nobility consist of princes, counts, barons, and knights; the others are burgheers, husbandmen, and peasants.

The established religion of Bohemia is popery; but there are many protestants among the inhabitants, who are now tolerated by the wise regulations of Joseph II. in the free exercise of their religion. The Jews at Prague are indulged also with a toleration. The archbishop of this city is born legate of the holy apostolic see of Rome, and crowns the king of Bohemia; he is also a prince of the holy Roman empire, primate of the kingdom, and perpetual chancellor of the university of Prague. His suffragans are the bishops of Leutmeritz and Xoniggratz. The government of the church and clergy is vested in the archiepiscopal collitory, from which an appeal lies to the king or the pope.

The extent of Bohemia, and also its population, have been variously estimated. Its length is about 622 miles, and its breadth 142. Some centuries ago, the inhabitants were estimated at three millions; but in later times they have been very much diminished. It is said, that in the year 1693, and the three or four following years, no fewer than 300,000 families, and many other individuals quitted the country, among whom were many of the nobility, on account of the inefiine religious wars, and the succeeding irruptions of the Swedes. In M. Hoeck's "Statistical View of the States of Germany, &c." 1801, the kingdom of Bohemia is stated to contain 962 1/2 square miles, 250 cities, 308 market towns, 11,475 villages, 430,000 houses, 1,342,550 men, 1,466,817 women, and the total of the population 2,806,903. The number of Lutherans has been estimated at 9050, of the reformed at 25,110, and of Jews at 36,000. Some writers have stated the number of Protestant at 56,000, and that of the Jews at 40,000, of whom 8800 are settled at Prague. In their disposition, habits, and manners, the Bohemians resemble the Germans; being indeed a mixture of Slavonians and Germans, the former of whom live in villages and are slaves. They have no middle rank of people; for every lord is a petty sovereign, and every tenant a slave. The Bohemian peasants, on the imperial demesnes, have been lately relieved from the state of villainage, in which they had been so long and so unjustly retained; and it is hoped, that the example of the emperor will be followed by that of the Bohemian nobility in general, so that their vassals may recover those rights of which they have been long deprived. The natives of this country are singularly robust and strong-built, hand- some, except that their heads are somewhat too large, and active, thrwed, courageous, and sincere. The gentry are ingenious, brave, and more inclined to arms than arts. Learning in Bohemia is in a low state: though the kingdom possesses one university, 12 gymnasias, 2,219 German schools, 200 schools of industry, and 33 ladies' schools.

The Bohemian language is a dialect of the Slavonie, but somewhat harsher than that of their neighbours, who speak the same language, and who change the consonants, and particularly the f, more into vowels. The Bohemians formerly used the same letters with the Ruthenians; but in the time of Dateslaus the Pious, the Latin was introduced among them. Upon the first introduction of Christianity in this reign, the religious service was performed in the Latin tongue, a language unknown to the people; but in consequence of the representation of Methodius to pope Nicholas the Great, he allowed the prayers to be rehearsed in the vulgar tongue. But some years after, when a bishop was sent into Bohemia, the Latin tongue was again ordered to be introduced in all their churches. Perfons of a superior class, from their intercourse with the court of Vienna, speak high Dutch or German, with which the language of the common people is also intermingled.

Bohemia is, upon the whole, one of the highest countries in Europe, and forms a large extended plain, surrounded, as we have observed, by high hills covered with wood. The vale in the middle, which is watered by the Elbe, the Moldau, and the Vaga, is protected from the wind, and it has neither lakes nor morasses which taint the air, which is dry and clear, with wholesome vapours. The climate is therefore salubrious, and not liable to those sudden changes, which are so fatal to health in other places. The heat of summer, and the cold of winter are alike moderate. The soil is in general rich, though in some places it is sandy. It is fertile in corn, wine, fruits, pasture, fritt, ginger, hops, wool, flax, and timber. The Bohemian hops, which are much valued, are carried as far as the Rhine in great quantities. Bohemia produces a strong large breed of horses, many of which are purchased for the use of the French cavalry. Its mountains are the richest in Europe, in gold, silver, precious stones, copper, quicksilver, iron, lead, tin, sulphur, and saltpetre. The Bohemian tin is reckoned the belt of any except the English. All kinds of marble are also found in this country, together with pitch, coal, alum, molybdenum, excellent mineral waters, and hot baths. It also furnishes numerous herds of cattle, and abundance of game and wild fowl, and also bears, lynxes, wolves, foxes, badgers, martens, beavers, and otters. Its rivers and ponds afford a plentiful supply of fish, and such as are of the best quality and flavour.
According to the statement of M. Hocck (ubi supra.)
Bohemia had, in 1787,

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Acres</th>
<th>Sq. Kilometers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ploughed land</td>
<td>3,609.30</td>
<td>77.6</td>
</tr>
<tr>
<td>2. Ponds</td>
<td>69.15</td>
<td>0.15</td>
</tr>
<tr>
<td>3. Fields</td>
<td>2,461.30</td>
<td>39.0</td>
</tr>
<tr>
<td>4. Meadows</td>
<td>708.393</td>
<td>11.6</td>
</tr>
<tr>
<td>5. Gardens</td>
<td>83.712</td>
<td>0.13</td>
</tr>
<tr>
<td>6. Marshy ground</td>
<td>65.515</td>
<td>0.10</td>
</tr>
<tr>
<td>7. Pastures and heaths</td>
<td>613.141</td>
<td>9.7</td>
</tr>
<tr>
<td>8. Vineyards</td>
<td>4.482</td>
<td>0.07</td>
</tr>
<tr>
<td>9. Woods</td>
<td>2,319.811</td>
<td>37.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7,785.653</td>
<td>128.3</td>
</tr>
</tbody>
</table>

The territorial produce of grain, forage, vines, woods, and rivers, amounted, in 1789, to 30,057,939 florins. Of cattle there were, in 1771, 97,800 oxen, 2,338 bulls, 3,688 cows, 2,773 calves, 84,523 hee, 1,67,343 hogs, 364 he-goats, 2,758 he-goats, and 3,338 rams. The produce of grain amounted to two millions of minots (a troy equal to three bushels) of which, ten millions of grains, four millions of minots of barley, and eight millions of minots of oats. In the list of natural productions are also to be reckoned fruit-trees, hops, principally in the circle of Saaz, flax, tobacco, saffron, poultry, bees (of which, in 1791, there were 20,257 hives), tin (chiefly at Schlenckenwaide, and there are ten mines of tin in the circle of Saaz, and two in that of Leutmeritz), cobalt, 10,000 quintals in the circle of Saaz, silver, alum, at Commothan, in 1788, 1,715,574 quintals. This author also states, that Bohemia had, in 1781, 95 manufactures, which employed 19,613 workmen. These manufactures are of linen, wool, cotton, silk, paper, glass, leather, &c. amounting in the whole to 25,843,447 florins, of which salaries take to the value of 11,840,77 florins. The articles of export, according to his enumeration, are alum, Epsom-fall, butter and greese, fish, flax, poultry, grain, mineral waters, harne-stines, wood, hops, cobalt, hides and skins, fruit, horses, pork, bismuth, vitriol, game, flax, tin, dimity, articles in iron, articles in glafs, garnets, bals, luens, brafi, paper, pot-alh, aqua fortis, lace, cloth, and thread. The articles of import are cotton, lead, white leen, books, iron, and iron articles, colours, flax, jewellery, lace, horned cattle from Hungary, coffee, cotton, fluffs, galls, merchandise of Lyons, liqueurs, silks, Hungarian cattle to the value of 806,000 florins, and wine to the value of 750,000 florins. The balance of trade is said to be in favour of the country. M. Hocck also informs us, that the revenues of the state are fifteen or sixteen millions; but that the expenses are so high, that out of this sum the frusius amounts only to 63,000 florins; that the contribution in 1789 was 3,056,017 florins, and the tax on the Jews 214,000 florins; and that the annual revenue from the domains of the crown was, during the life of Maria Theresia, 337,220 florins; these domains are now estimated at 177,774 acres. The number of soldiers to be furnished by Bohemia, in time of peace, is 54,674; and, in time of war, 72,092. The capital city of Bohemia is Prague; which is four.

Bohemia, a broad navigable river of North America, 12 miles long, which runs W. N. W. into Elk river, in Maryland, 11 miles below Elkton.

Bohemian, or Moravian, Brethren, in Ecclesiastical History, is an appellative anciently given to the Protestant in Bohemia. By their adversaries they were called Picards, i.e. Beypards. They were descended from the better sort of Hulstes, and were distinguished by several religious institutions of a singular nature, and well adapted to VOL. IV.

BOHIO, in Geography, a river of Chili in South America.

Bohk, in Ichthyology, is the Arabic name of a sort of Ray that inhabits the Red sea, and is described by Forfikul under the appellation of Roja glutinosa. Bohme, in Geography, a river of Germany, which runs into 4 X.
BOHN, John, in Biography, was born at Leipsic the 20th of July 1640, where he received the rudiments of his education. At a proper age his father sent him to Jen. to be initiated into the study of medicine. In 1669, he returned to Leipsic, continuing his studies there, until 1673, when he was called to Copenhagen, Holland, England, France, and Switzerland, every where attending the lectures of the most celebrated masters, but particularly attaching himself to Malpighi. Returning, at the end of two years, to Leipsic, he took his degree of doctor in medicine, and was in succession advanced to the rank of professor in anatomy, and in therapeutics. In 1691 he was appointed public physician to the city of Leipsic; and, in 1700, dean of the faculty of medicine, which offices he continued to hold with credit to the time of his death, in 1718.

Besides numerous dissertations on the different branches of medicine which had great merit, he published, in 1668, "Exercitaciones physiologicae xxvi," 4to. This work was afterwards considerably enlarged and reprinted in 1685, under the title of "Circulus anatomico-physiologicus, five economia corporis animalis," 4to. In this he examines, with accuracy and judgment, the different hypotheses then prevailing in medicine. He here first showed the difference between the systemic and the hepatic bile. Finding the liquor amni minguabile, he supposed it contributed to the nourishment of the foetus; which, however, later experience contradicts, as foetuses born without heads, or where the passage through the oesophagus into the stomach has been closed, are found to attain, in utero, equal bulk and firmness, as those that are perfect. He supposed the heart to be excited to contraction by the stimuli of the blood; and shews the ova pubis are not separated in parturition, to allow a free passage to the foetus; which was in his time the prevailing doctrine.

In his "De variolis, baccentes in patria graffatis," published in 1679, he advices giving purgatives with calomel, on the first attack of the complaint, with the view of rendering the disease more mild; a practice of which later experience has proved the utility. In his "De Renuntiatione vulnerum," 1689, 4to. Amsterdam, he shews what wounds are necessarily fatal. His treatise "De Officio medici duplici, clinico, et forensi," 4to. 1704, gives rules for the conduct of physicians, in attending their patients, and in giving evidence before a court of judicature. This is a work of great merit, and has fearfully been exceeded by any later production on the subject. These have all been frequently reprinted.


BOHOL, in Geography, one of the Philippine islands between Manila and Mindanao, about 16 leagues long from north to south, and 8 to 10 broad. The south coast towards Mindanao is the most populous; that is, from Lobag, the metropolis, to the little island or peninsula of Panglao. The soil does not produce rice, but is said to be rich in gold mines, and to yield, in great abundance, cacao, bananas, and severals sorts of roots which serve instead of rice. In the mountains there are multitudes of cattle and fowl in the sea, which the natives exchange with those of the neighbouring islands for cotton. N. lat. 10°. E. long. 122° 5'.

BOHONIZZ, a town of Bohemia, in the circle of Dechin, 2 miles S.S.W. of Teia.

BOHRAN, a town of Sileia, in the principality of Brodaw, 16 miles south of Brodaw.

BOHLITZ, a town of Moravia, in the circle of Brunn, 9 miles W.N.W. of Auigaiz.

BOHUS, or Bohus, a fortified island of Sweden, in Gotland, encircled by two branches of the Gotha, about 9 miles north of Gotheborg. The fort stands on a rocky eminence, and was formerly celebrated in the history of Norway, as a place of considerable strength, and forming the frontier fortresses during the constant wars between the Danes and Swedes. It was erected in 1599 by Hacquin IV. king of Norway, and, before the invention of gun-powder, it was a wooden fortress; but in 1448 was built with stone by Christian I. The situation is strong, and it is garrisoned by 100 men. The summit affords a pleasing view of the Gotha, wending at the feet of barren rocks. Bohus gives name to a jurisdiction of which it is the capital. It formerly belonged to Denmark, but by the treaty of Roschild, in 1658, it was ceded to Sweden.

BOHUSLAW, a town of Poland, in the palatinate of Kow, near the river Ros. N. lat. 46° 57'. E. long. 15° 11'.

BOJA, in Antiquity, a collar or chain fastened about the necks of criminals, to prevent their escape.

The word is also written boga, bodha, and baza.

BOIA, in Ancient Geography, an island in the Ægean Sea.

Anton. Itin.

BOJADOR, Cape of Bajadore (which see), in Geography, lies on the western coast of North Africa, placed in the Tables of the Commissioners of Longitude, in N. lat. 26° 23' 52", W. long. 14° 27'. and, in Rennell's map, in N. lat. 26° 26', W. long. 14° 17'—W. long. 14° 49', by M. Fleurieu, and 14° 28' Conn. de-Tems. This cape was doubled by Galiano and the Portuguese navigators, under the direction of Prince Henry, and embellished by their voyages to Madeira, which required their quitting the coast and venturing into the open sea, in the year 1413. For 20 years before this time, this cape had been the boundary of their navigation, and it had been deemed impassable. But this successful voyage, placed by the ignorance of the age on a level with the most famous exploits recorded in history, opened a new sphere to navigation, as it discovered the vast continent of Africa. Still washed by the Atlantic ocean, and stretching towards the south. Of such consequence was the doubling of this cape, that the Portuguese soon after advanced within the tropics, and in the space of a few years discovered the river Senegal, and the whole coast extending from cape Blanco to cape de Ver.

BOIANO, a town of Naples, in the county of Molife, the see of a bishop, suffragan of Benevento, who resides at Campo-Basso; 9 miles south of Molife. See BOVINUM.

BOARDO, Matteo-Maria, in Biography, count of Scandiano, a person eminent for literature, was born at Fratta near Ferrara, about the year 1430, and educated at the university of that city, where he principally resided. Being highly esteemed by the dukes Borso and Hercules I., he was appointed by the latter governor of Reggio in the Modenese, where he died in 1494. He was well acquainted with the Greek and Latin languages; and translated into Italian, from the former, the history of Herodotus; and from the latter, the golden age of Apuleius, and the chronicle of Ricobaldo. His essays in Latin verse are reckoned among the most elegant productions of that age. He also wrote in Italian verse a comedy, entitled "Timon," taken from a dialogue in Lucian, and other pieces. But his greatest fame was derived from his "Orlando Innamorato," which combines with the ancient epic the extravagance of modern romance. His style was rude, and his verification stiff and harsh; but the fervour of his fancy and the liveliness of his imagery rendered this work, which he left unfinished, captivating and popular. It was continued by Niccolo Agostino, and
and recomposed and polished, about half a century afterwards, by Lud. Dominoeco and Fr. Berni. The work of the latter is so well executed, that it has almost superseded the original. The best edition of Boiardo's own performance is that of Venice in 1544. This work served as the model and groundwork of Ariofto's "Orlando Furioso"; which is properly a continuation of it with new adventures. Boiardo's sonnets bear the character of a much purer style than his Orlando. Morei.

BOIARKI, in Geography, a town of Poland, in the pala-

tinate of Kiov, 38 miles S.S.E. of Bialaceiwick.

BOICINGNA, or, more properly, Boicincuga, in Zoology, the Brazilian name of the most common kind of rattle-snake that is found in South America:—Crotale boa-
guana of Boie.

BOICUAIBA, a kind of Peruvian serpent, supposed to belong to the boa genus. It is described as being twenty feet long, black on the anterior part, the rill yellow.

BOIGA, the name of an American snake, called by Lin-

nus Cthaler abdattula.

BOIGUACU, the name of a sort of serpent, called also ikeia, and by the Portuguese Cobra de venado. The relations of those writers who speak of this extraordinary creature partake rather of the marvellous, insomuch that we cannot but entertain considerable doubt as to the identity of the species; that it is of the boa tribe there can be no dispute. Perhaps it is no other than the ibideresa and Boiguacu of Sibs, which Dr. Shaw describes under the name of Bua regia; a species somewhat allied to, and confounding of which the history has probably been confounded with that of the latter kind. The boaiguacu is represented as the largest of all the serpent tribe, in which it agrees with the constrictor. It grows, we are told, to the length of four and twenty feet, and more. The middle of the body very thick, but becoming smaller at the head and tail. Down the middle of the back runs a chain of black spots, a hand's breadth distant from one another, each having a spot of white in its middle; and below these are two other rows of smaller black spots, towards the belly. Each jaw is said to be furnished with two rows of sharp teeth, white as pearl. The head very broad, with two protruberances over the eyes, and, in some of this species, two claws, like those of birds, behind the anus, towards the tail. The half particular of which must evidently be an absurd mistake, arising from the inattention of the describer.

We are further told, that the boaiguacu is a terrible creat-

ure, one that preys upon the larger animals, and will feize upon a man. That it either lies in ambush in the thicket, or on the branches of large trees, from which it throws itself upon its prey. It has no venom in its bite; and its flesh is eaten and esteemed a delicacy. This fact is common in the Brazils. The size to which it attains sometimes is astonishing. Borrius preferred the skin of one (supposed to be the same) which had been killed by himself, that was twelve yards long; and he relates, that there was a serpent of this kind destroyed in Java, that measured thirteen yards and a half in length, and had, when killed, a boar in its belly. And de Lact relates, that in Rio de la Plata there are some of this kind of serpents so large, that they will swallow a whole flag, the horns not excepted. This is probably exaggerated. It is affirmed of the boa constrictor, by others, that when the enormous creature has gorged an animal of this kind, the horns remain sticking out of the mouth of the serpent, till the digestion of the flesh takes place, and the horns drop off. The boaiguacu is eaten by the natives of Brazil.

BOII, in Ancient Geography, a people, who, according to Cesar (lib. vi. c. 24.), were a Gaulish nation, but from Gaul passed into Germany, and, settling in the present Bohemia, continued there till they were expelled by the Marcomanni. Strabo calls them at different times Celts and Gauls; and M. Pelloutier is of opinion that they were a tribe of the Celts, who inhabited Thrace and Illyria. Some of these, he says, occupied the Hernicin forest on the other side of the Danube, and migrated into Bohemia; others were mixed among the inhabitants of Thrace; and others remained in Illyria, between the Danube and the Drave. Of these Boii there were, therefore, several distinct tribes. After Belo-

vius had made an irruption into Italy through the country of the Taurini, the Boii and Lingones entered it by the Pen-

nine Alps. These Boii occupied the more southern part of Galia Cipadaniss, or Cifalpine Gaul, and were separated from Etruria by the Appennines, and from the Senones by the Ru-

beo. Their principal city was Bononia. In the year of Rome 395, they advanced in Italy as far as the plain of Frascati, and were defeated there by the Dictator C. Sul-

picius. Pursued by the Romans, they retired over the Da-

nube, and inhabited the confines of Pannonia and Illyria, along with the Taurini and Scordisci. In this country they contended with Boebeibis, king of the Geterz, and were destroyed by his troops. Their country afterwards remained desert and uncultivated, and was called the "district of the Boi." The Romans in process of time built here the towns of Scabariania and Sabaria. Cesar is supposed to have re-

ferred to these Boii, when he says, that the Boii who had remained on the other side of the Rhine, and who had de-

scended from Noricia, where they had fled to the town of Noreia, were summoned by the Helvetii to unite with them in an irruption into Gaul. Another body of the Boii hav-

ing entered into Germany, settled on the north of the Da-

nube, in an extensive country, almost wholly surrounded by mountains, and having on the western part the Hercynian mountains. This country was afterwards occupied by the Marcomanni, and is now called Bohemia. These Boii were blended by degrees with other nations; but retaining some kind of importance, they preferred an imperfect trace of their name in that of Bozarii, whence proceeded Bavaria. The Boii, who joined the Helvetii on their attack of the Gauls, were overpowered by Cesar; but after their defeat, the Edii prevailed with Cesar to allow them a settlement, on account of their distinguished valour, in a small district of their terri-

tory. It is said that he built for them a small town called "Gegovica," of which no trace now remains. M. d'Anville places these Boii in a kind of peninsula, formed by the rivers Liger and Elaver, before their re-union. Another body of the Boii, denominated by Aufonius "Peci," occupied the western part of Gaul, comprehended in Noven Populana, fourth went of the Diturges Vivicia, upon the sea-coast.

BOII, or Peruncule, in Surgery, is a painful, circums-

fered, and inflammatory tumour, feldom larger than a

pigeon's egg, generally of a conical figure, seated in the sub-

cutaneous adipose membrane, and proceeding from an

internal cause. It's apex or central point is but slightly raised above the skin, and commonly tends to suppuration. Part of the surface of the body is exempt from the attacks of this disorder, but those parts are more liable to boil which abound with cellular substance. The purulent fluid they contain is usually inclosed in one or more cysts or sacculi, and is very slow in coming to a state of full maturation; so that it is re-

quie
quire particular medical attention. But it is a very bad prac
tice, though it by no means uncommon, to administer frequent purges in such cases, which tend still more to diminish the
tone of the patient, already too much exhausted. The state of
the sytem must be remedied by such means as are indicated
by the peculiar circumstances of the patient; for no general
plan can be prefcribed, which is proper in all cases.

Before a considerable boil appears, the patient sometimes
feels himself indisposed, rather feverish, and is troubled with
a number of slight complaints, which all disappear as soon as
the tumour is formed: so that in this case it seems to have
some similarity with a critical metalasis. Otherwise, boils,
on account of the sense of tenion and pain which they occasion,
are more troublesome than dangerous.

The best common method of treating these tumours
locally, is to bring them as soon as possible to suppura-
tion, as this seems to be their natural tendency; and as
the attempt to discuss them generally succeeds either very
imperfectly or not at all, some few cafes excepted. For
discussing them are recommended the external applications of
spirit of vitriol mixed with honey, strong wine-vinegar, car-
phorated oil, &c. In most cafes, however, it is necessity
that we should immediately endeavour to promote suppuration,
which may be done by means of simple emollients;
such as bread and milk poultices, linseed cataplasm, or a
mixture of oatmeal and honey. If the pain be extremely
great, we may add a small quantity of the extract of hemlock
or poppies, and give a grain or two of opium internally.

When the inflammation is moderate, but the hardnes con-
derable, dilatant and caudal part remedies, such as roasted
onions, white-lily roots, gum ammoniac, &c. must be
combined with the emollients. Mr. Wielitz affirms that no re-
medy brings boils so easily and quickly to suppuration, as the
leaves of the ricinus communis boiled in milk, and applied in
the form of a poultice.

When the tumour does not burst spontaneously, which it
generally does at its point, it is to be opened with a lancet.

Besides the general rules, according to which such an abscess
must be treated, it is necessary also that the core or mem-
branous part of the boil should be extracted in due time,
and that all the remaining hardnes about the circumference
of the fore should be discussed. For as long as this core
remains in the cavity, the fore will not heal perfectly; neither
can it be brought to heal mafee the hardnes be discussing, but
either an ulcer or a fibula is produced, or the fore scis over,
whilst an induration still remains behind, which gives rise,
according to the part in which it is situated, to various trouble-
some symptoms, and after some time becomes again in-
flamed, nor does it disappear entirely till it is discussed by
a complete suppuration.

We may indeed attempt to discuss such indurations by
means of the usual deoblitents, such as the external applica-
tions of mercury, hemlock, soap, belladonna, &c. but they
will generally fail of their effect, and we shall be obliged to
wait till a new inflammation is produced. It is therefore best
to support and promote the suppuration from the very com-
menccement, and not to suffer the abscess to heal up till all re-
manes of induration have disappeared; and when the suppuration
does not proceed with sufficient vigour, it ought to be
promoted by means of warm turpentine, and digestive oint-
ment. If this do not produce the requisite effect, it should
be mixed with red precipitate; and to the indurated parts
we ought to apply externally hot fomentations, with other
emollient and stimulant remedies, according to the general
rules laid down under the article ABSCESS.

Boiis, gum. See Gum.

BOILEAU, NICHOLAS, named Defpreaux, in Biography,
an eminent satirical poet and critic, was born either at Paris,
or at Cron near that city, in 1636. Boileau himself, after
having been truly enabled by his writings, had the silly
vanity to pique himself on the high antiquity of his lines.
He pretended that John Boileau, the ancestor of his family,
was ennobled in 1571 by Charles V. king of France; and he
boasted, in consequence of a suit instituted against his
family, and occasioned by a severe scrutiny into the validity
of titles assumed by the noblesse of the kingdom, under
a commission of inquiry established by Louis XIV. in 1695,
that he had gained his cause with flying colours, and that he
had a patent in his possession which allowed him a nobility of
400 years' antiquity. It is said, however, that the sentence
passed in favour of Boileau's nobility was the result of his
reputation as a poet, honoured with the protection of the
king; that the titles produced had been fabricated:
and that a writ had been found among the papers of the
poet for 20 louis d'ors, paid by him for his share in the titles
which had been forged by an obscure person of the name of
Hauquier. However this be, his own writings were un-
questionably his best "lettres de noblesse." As a younger
brother, he was hardly treated in his youth, more especially
because his father regarded him as a heavy and stupid lad,
delicate of that vivacity of temper and understanding for
which his elder brothers were distinguished. We are in-
formed also, that he underwent an operation for the stone at
eight years of age. These circumstances probably induced
him to declare, that if he could be restored to infancy, on the
hard conditions he had experienced, he would not have ac-
cepted the grant; and hence he always diftincted the common
opinion that infamy is the happiest period of our lives.

Defpreaux, indeed, seems not to have thought the other
parts of his life more happy than his infancy; to him all ap-
peared equally miserable; youth tormented with passions, ma-
turity with cares, and old age with infirmities; and he seemed
to have adopted in some measure that philosopher's opinion,
who, when he was asked "what was the happiest period of
a man's life?" answered, "that which is past." "It would
be difficult," says Defpreaux, "to determine this question;
we are sure, however, that it is hardly ever the present time."

Boileau was intended by his father for the profession of an
advocate; but his taste for polite literature, to the culture
and gratification of which he devoted his leisure hours,
derived him for this mode of life; and his repugnance to it
was strongly indicated by his dropping asleep, while his
brother-in-law, M. Dongois, a clerk of parliament was reading
an arret, which he had taken great pains to compose.

Upon this, he was sent home to his father as an invincible
dunch, who would be nothing else but a simpleton during his
life. Relieved from the embarrassment of pursuing a profes-
sion which he detested, his attention was next directed to schola-
tic divinity, from which he was equally averse. When hisfather
found, that his views repelling him were altogether frust-rated,
he allowed him to indulge his own inclination, and to devote
himself wholly to literature. At the age of thirty years, Boi-
leau's true character, which had long been unknown to any
but his intimate and confidential friends, was developed;
and he appeared before the public as a "writer of fai-
ture." He began with ridiculing the numerous tribe of bad writers,
and he thus excited a host of enemies. Among others the
duke de Montesfiier reproached him on account of the fe-
v'y of his personal faiures as injurious to society; but he
contrived to disarm his enmity by a single stroke of flatter-
try, which verified, says D'Alembert, the lines of La
Fontaine:

"Amuse the great with adulation,
Your praise to all their faults extend,
BOILEAU.

Whatever their former indignation,
The bait goes down, and you're their friend."
Twelve of his Epistles were published; one of these was his satire against women, the most bitter and outrageous of all, which is said to have been occasioned by his having been in early life jilted by a young person to whom he was going to be married, and who ran away with a molequaire. Racine, the younger, one of his particular friends, however, says, that he never had a mistress, nor ever thought of marrying. On the publication of this satire he was attacked from all quarters; but his friend Racine confided all as he could: "Courage," says he, "you have attacked a numerous corps, which is all tongue: but the storm will blow over." The best of his satires was that entitled "A fin Epirite," a piece of irony, abounding with the most keen and polished ridicule. Whatever reproach Boileau incurred for the personality of his satires, it is mentioned to his honour, that he always distinguished between folly and vice; and that he never attacked bad taste and dunces with any other arms than ridicule, whose vice and profligacy were treated by him with just indignation.

The Epistles of Boileau were followed by his "Art of Poetry," which is reckoned the best of all the poetical works of criticism existing, equally admirable for the good sense of its maxims, and the appropriate beauty of language by which its precepts are explained. This was succeeded by his "Epistles," tinted around the model of Horace; and rendered peculiarly pleasing by the union of morality with criticism, and description with sentiment; interspersed with characteristic traits and anecdotes of himself. In one of these, addressed to the king, he artfully, at the instigation of Colbert, endeavoured to divert the sovereign's mind from the schemes of conquest to the glory of promoting the welfare of his subjects by plans of utility and beneficence. Lewis was gratified by the delicate praise with which this advice was accompanied, and applauded the epistles; but went to war with Holland. In 1674, he published his "Lutrin," a mock heroic kind of composition, founded on a trifling dispute between the treasurer and charter of the holy chapel, and ranking among the first productions of this clafs. Boileau had now acquired a degree of reputation which recommended him to favour and patronage at court; and the king honoured him with a pension, an exclusive privilege for publishing his own works, and the office, conjointly with his friend Racine, of royal historiographer. In this latter capacity, neither he nor his associate had an opportunity of appearing before the public. Boileau, indeed, published his "Ode on the taking of Namur," which is more an historical than a poetical effort. At this time he attended frequently at court; and yet he maintained a freedom and frankness of speech, more especially on topics of literature, which are not common among courtiers. When Lewis affixed his opinion of some verses which he had written, he replied: "Nothing, fire, is impossible to your majesty; you wished to make bad verses, and you have succeeded." He also took part with the persecuted members of the Port-royal; and when one of the courtiers declared, that the king was making diligent search after the celebrated Arnauld, in order to put him in the Bastille, Boileau observed, "His majesty is too fortunate; he will not find him!" and when the king asked him, what was the reason why the whole world was running after a preacher, named le Tourneux, a disciple of Arnauld, "Your majesty," he replied, "knows how fond people are of novelty:—this is a minister who preaches the gospel." Boileau appears, from various circumstances, to have been no great friend to the Jesuits, whom he offended by his "Epistle on the Love of God," and by many free speeches. By royal favour, he was admitted unanimously, in 1684, into the French academy, with which he had made very free in his epigrams; and he was also associated to the new Academy of Inscriptions and Belles Lettres, of which he appeared to be a fit member by his "Translation of Longinus on the Sublime." To science, with which he had little acquaintance, he rendered, however, important service by his burlesque "Arret in favour of the University, against an unknown performance called Reason," which was the means of preventing the establishment of a plan of intolerance in matters of philosophy. His attachment to the latter, as the true models of literary taste and excellence, occasioned a controversy between him and Perrault concerning the coporative merit of the ancients and moderns, which was prosecuted for some time by epigrams and mutual reproaches, till at length the public began to be tired with their disputes, and a reconciliation was effected by the good offices of their common friends. This controversy laid the foundation of a lasting enmity between Boileau and Fontenelle, who inclined to the party of Perrault. Boileau, however, did not maintain his opinion with the pedantic extravagance of the Dacierists; but he happily exercised his wit on the misrepresentations of the noted characters of antiquity, by the fashionable romances of the time, in his dialogue entitled "The Heroes of Romance," composed in the manner of Lucian. In opposition to the absurd opinion of father Hardouin, that most of the classical productions of ancient Rome had been written by the monks of the 13th century, Boileau pleasantly remarks, "I know nothing of all that; but though I am not very partial to the monks, I should not have been forc'd to have lived with friar Tribulus, friar Juvenal, Dem Virgil, Dom Cicero, and fuch kind of folk." After the death of Racine, Boileau very much retired from court; induced partly by his love of liberty and independence, and partly by his dislike of that adulation which was expected, and for which the close of Lewis's reign afforded more feamy materials than its commencement. Separated in a great degree from society, he indulged that austere and milantropical disposition, from which he was never wholly exempt. His conversation, however, was more mild and gentle than his writings; and, as he used to say of himself, without "nails or claws," it was enlivened by occasional fables of pleasantry, and rendered instructive by judicious opinions of authors and their works. He was religious without bigotry, and he abhorred fanaticism and hypocrisy. His circumstances were easy; and his prudent economy has been charged by some with degenerating into avarice. Influences, however, occur of his liberality and beneficence. At the death of Colbert, the pension which he had given to the poet Corneille was suppressed, though he was poor, old, infirm, and dying. Boileau interceded with the king for the restoration of it, and offered to transfer his own to Corneille, telling the monarch, that he should be ashamed to receive his bounty while such a man was in want of it. He also bought, at an advanced price, the library of Patrie, reduced in his circumstances, and left him in the possession of it till his death. He gave to the poor all the revenues he had received for eight years from a benefice he had enjoyed, without performing the duties of it. To indigent men of letters his purse was always open; and at his death he bequeathed almost all his possessions to the poor. Upon the whole, his temper, though naturally austere, was, on many occasions, kind and benevolent, so that it has been said of him, that he was "crue only in verse;" and his general character was distinguished by worth and integrity, with some alloys of literary jealousy and injustice.
judges. He died of a dropy in the breast in 1711, at the age of 75, and bequeathed the greater part of his property to charitable uses. His funeral was attended by a very considerable number of person of rank and literature. How came this man (exclaimed a woman in the street) to have so many friends? They say he never spoke well of any body in his life.

As a poetical writer, he has been denominated the "poet of good sense," correct in his verification, choice and pure in his language, just and rational in his sentiments, always guided by judgment and taste, observing the limits of decorum, and never betrayed by wit or fancy into extravagances. Few, if any writer, ever composed so much, with so little occasion for erasure or alteration. Voltaire, who often denied the equity of his decisions in matters of criticism, says of him, in a letter to Helvecius: "I agree with you that Boileau is not a sublime poet; but he executed admirably whatever he undertook. He is clear, easy, happy in his expression; he seldom rides very high, but he never stinks. Behold the subjects of which he treats are not of a kind to require great elevation.—I shall, therefore, always warmly recommend that kind of writing which he has so well taught, that respect for language, that quick succession of ideas, the art and facility with which he conducts his reader from one subject to another; and above all, his simplicity, which is the true fruit of genius." Boileau, was the first writer who formed the national taste of France, and by his translations and imitations gave his countrymen a true relish for the epistles and Satires of Horace, which before his time used to be much less esteemed than his odes. The great defect of Boileau, according to D'Alembert, is want of feribility; and if enthuasiam, which is incompatible with that coldness of heart that distinguished his character, is essential to a true poet, his claim to this honourable appellation must be disallowed. Nevertheless, his works may be justly regarded as master-pieces of their kind, and can never die, as long as the language in which they are written exists. Having taken great pains in the composition of them, he was not insensible of their peculiar and characterific excellence; accordingly, in some lines written by himself, and intended to be placed under his portrait, he makes no hesitation in affirming that he had united the merits of Perius, Juvenal, and Horace. Boileau and Pope have been thought much to resemble one another, as to both the kind and discriminating character of their writings; but, says a very competent judge, "Boileau, with a nearly equal portion of wit, has much more delicacy and correctness; while Pope as much surpasses him in force and fancy. Both abound in good sense, and each has enriched his language with nervous lines that have passed into proverbial sentences." In another place the same writer observes, that after we have rendered to Boileau Delspreaux all due homage as a great poet, and as the legislator of taste, his faults as a satirist indicate an acrimonious and unfeeling character, a high conceit of his own powers and consequence, and an unparnoble disregard of the happiness and reputation of others. "If the English poet had as much causticity as the French, and more peculiarity irritability, he seems to have had a more feeling heart, and a more true sense of justice." We may remark, that pernicious satire soon loses its salt and poignancy; and that the fatires of Boileau, as well as the Dunciad of Pope, are les read now than any of their other works.

Besides the works of Boileau, already mentioned, there are several smaller pieces both in prose and verse. Of the whole there have been various editions, with explanatory notes; and of the rest the principal are that of Geneva, 2 vols. 1716,
BOIL

breadth of the boiler, and at about twelve inches distance from one another. These are placed twenty-four inches above the surface of the fire. On these many bars of iron they lay, cross-wise, the common flat bars of iron, as close as they can lie together, and then make up the sides with brick-work. In the middle of the bottom of this boiler is laid a trough of lead, wherein they put at first about a hundred pound weight of the rock. They use Newcastle coals in the boiling; and if they find the liquor not strong enough, they add more of the rock at times, as it boils. Phil. Trans. N. 142.

The boiler for making colours, &c. must be made of pewter; because iron and copper will be corroded by the saline substances used in the manufacture of them.

Count Runford (see his Elays, vol. i. p. 220.) recommends double bottoms to boilers, and also to saucepans and kettles of all kinds, used for culinary purposes; which contrivance, he says, will, in all cases, most effectually prevent what is called by the cooks, "burning-to." The heat is so much obstructed in its passage through the thin sheet of air which, notwithstanding all the care that is taken to bring the two bottoms into actual contact, will still remain between them, that the second has time to give its heat as fast as it receives it to the fluid in the boiler; and consequently it never acquires a degree of heat sufficient for burning anything that may be upon it. He suggests that it will probably be best to double copper saucepans and small kettles throughout: and as this may and ought to be done with a very thin sheet of metal, it would not cost much, even if the lining were to be made of silver. When the two sheets of metal that form the double bottoms of boilers are made to touch each other throughout, by hammering them together, after the false bottom has been fixed in its place, they may be tacked together, by a few small rivets placed here and there, at considerable distances from each other, and when this is done, the boiler may be tinned. In this operation, if proper care be taken, the edge of the false bottom may be folded by the tin to the sides of the boiler, and thus the water or other liquids, put into the boiler, will be prevented from getting between the two bottoms. The Count adds, that this invention of double bottoms might be used with great success by distillers, to prevent their liquor, when it is thick, from burning to the bottom of their stills. (See STILL.) Having found in the course of his experiments, (See Phil. Trans. 1792. Part I.) that confined gas, the heat exerted by that can be opposed to heat for the purpose of confining it, he proposed to confine the heat in the boilers of his contrivance, and to prevent its escape into the atmosphere, by means of double covers. These covers were made of tin, or rather of thin iron plates tinned, in the form of a hollow-cone; the height of the cone being equal to about one-third of its diameter; and thus the air which it contained was entirely shut up, the bottom of the cone being closed by a circular plate or thin sheet of tinned iron. The bottom of the cone was accurately fitted to the top of the boiler, which it completely closed by means of a rim about two inches wide, which entered the boiler; which rim was folded to the flat sheet of tinned iron that formed the bottom of the cover. The steam, generated by the boiling liquid, was carried off by a tube about half an inch in diameter, which passed through the hollow conical cover, and which was attached to the cover, both above and below, with solder, in such a manner that the air with which the hollow cone was filled remained completely confined, and cut off from all communication with the external air of the atmosphere, as well as with the steam it generated in the boiler. For his various contrivances in the most advantageous construction of boilers for the saving of fuel, and for producing the desired effect, we refer to his Elays, vol. ii. p. 18, &c.

BOILERY, or BOILY, in the Salt Works, denotes a salt-house, pit, or other place, where salt is made.

BOILING OF MEAT, in Cookery, is the exposing of meat to the heat of boiling water, while it is immersed in it for a certain time. By this joint application of heat and moisture, the texture is rendered more tender and more soluble in the flomach; and it is only in this way, that the former parts, as the tendinous, ligamentous, and membraneous parts can be duly softened, and their gelatinous substance duly extracted. A moderate boiling renders the texture of animal flesh more tender, without much diminution of its nutritious quality; but if the boiling is extended to extract every thing soluble, the substance remaining becomes less soluble in the flomach, and at the same time much less nutritious. But as boiling extracts in the first place the more soluble, and therefore the saline parts; so the remainder, after boiling, is in proportion to the communiction of the operation is alkaline, and lefs heating to the fystem.

Boiling is commonly practiced in open vessels, or in vessels not closely covered; but it may be performed in digester; or vessels accurately and tightly closed; and in such vessels the effects are very different from those that take place in open vessels. As we can hardly employ any other degree of heat than that of boiling water, the water in the digester is never made to boil, so there is no exhalation of volatile parts; and, although the solution is made with great success, and may be to any degree required, yet if it be not carried very far, the meat may be rendered very tender, white it still retains its most rapid parts; and this kind of cookery will always give the most desirable state of boiled meat. Boiling, in the ordinary way, is different, according to the proportion of water that is applied. If a small quantity be applied, and the heat in a moderate degree is continued for a long time, this is called "boiling," and has the effect of rendering the texture more tender, without extracting much of the soluble parts; and of course it leaves the meat more rapid, and sufficiently nourishing. Cullen's Med. vol. i. p. 400, &c.

BOILING, evaporation, in Physics, is the internal commotion excited in a mass of water or other liquified substance, by the successive conversion of the lower portions of the fluid into vapour, and their violent effort under this expansive and elastic form to make their escape. It is usually, though not necessarily, produced by the application of heat. The circumstances which precede or accompany the phenomenon of boiling, are best observed in a thin transparent vessel nearly filled with water, and suspended over a lamp or a charcoal fire. Numerous minute globules are seen collecting from all points towards the fides and rising in a stream to the surface; occasioned evidently by the discharge of air, which is always in some proportion combined with water. As the heat increases, the liquid particles near the bottom of the vessel suddenly burst into steam, and shoot upwards; but in ascending through the colder mass, they again collapse, drop their progres, and seem lost. Such alternate expansions and contractions; by throwing the fluid into a gentle tremor, frequently causes a peculiar sort of singing noise, which is rightly supposed to betoken the approach of actual boiling. This singing is more likely to happen in the case where heat is applied partially; for instance, if a tea-kettle be placed at the side of the fire, since the heat is then more slowly and unequally diffused through the body of the water. But after the whole contents being fully penetrated, are warmed up to the requisite degree of intensity, the steam, as salt as it is formed,
processed, afeenda continually and escapes uneapired through
the fluid, which it, therefore, leaves with violent agitation.

The same appearance almost is produced by removing or
even diminishing the atmospheric pressure. Thus, if a tum-
bler holding warm water be introduced under the receiver
of an air-pump, as the exhaustion proceeds, or the incumbent
weight is gradually withdrawn, the latent portion of air is
discharged in a rapid flow of expanded bubbles. But this
process, at some certain point of rarefaction, is succeeded
by the vehement commotion which constitutes boiling; and
the water, assuming its invisible form, fills the imperfect
void with vapour, which betrays its existence by condensing
against the sides of the receiver in copious dew. Nor is heat
positively necessary towards vaporization, for it only confines
in accomplishing that effect, and supplies the want or the
imperfection of our means of producing exhaustion. By
help of an air-pump of the bell construction, the colder
water may be made to boil, nay, ice itself could be changed
into invisible steam. Hence the utter impossibility of ever
obtaining a perfect vacuum, because the restraining influence
of pressure being entirely removed, the liquid matter un-
avoidably presented would always diffuse a thin vapour.

The opposite influence of heat and pressure on the con-
stitution of fluids is well exhibited by a very simple yet
striking experiment. Take a large thin phial, and having
warmed it gradually to avoid the risk of cracking the glass,
fill it completely with boiling water, cork it tight, and ex-
pel it to a current of cold air. As the water cools, it
necessarily contracts its volume, and leaving an imperfect
vacuity below the neck of the phial, it hence becomes to a
considerable degree relieved from the load of atmospheric
pressure. It therefore soon begins again to boil, nay, it
will boil more briskly the fatter it cools; and this singular
appearance, if contrary to our usual notions, may continue
perhaps for the space of half an hour, till the water has
grown as cold almot as the temperature of the human body.

On the same principle depends the construction of what is
called the pulse glass: this consists of two balls connected by
a pretty long tube; one of these balls is filled with coloured
water or spirits of wine, which having been made to boil and
despel the air by its vapour, at the same instant the projecting
from the other ball is hermeticallysealed. As that vapour condenses with cold, it will leave the included
liquid then in a sort of vacuum, and the heat of the hand is
then sufficient to cause it to boil and to flow from one ball
into the other.

If a vessel containing water be placed over a steady fire,
the water will grow continually hotter till it reaches the
limit of boiling, after which the regular accensions of heat
are wholly spent in converting it into steam. The water
therefore remains at the same pitch of temperature, how-
ever fiercely it boils. The only difference is that, with a
strong fire, it sooner comes to boil, and more quickly boils
away. Hence the reason why a vessel full of water, and
plunged into the centre of a larger one, which is likewise
filled with that fluid, barely acquires the boiling heat, but
will never actually boil.

The formation of steam occasions a prodigious consump-
tion of heat; for if the time be noted in which water, by
the action of a strong fire, is raised from the limit of freezing
to that of boiling, it will be found to require more than five
times longer a space to boil entirely away. Thus, a portion
of heat corresponding to above 400 degrees by Fahrenheit's
scale, is always consumed in the act of boiling, or rather it
is transferred and enters into the composition of steam,
the gaseous product. This absorbed heat is as constantly
evolved when steam condenses and returns to its liquid form.

Hence in distillation a very large refrigeratory is required for
condensing a comparatively small quantity of aqueous or
spiritious vapour. Hence too the explanation of the fam-
miliar remark that steam scalds more cruelly than boiling
water.

The heat of boiling water, being subject to the influence
of the atmospheric pressure, is thus not absolutely fixed.
It varies with the variation of the barometer, and decreases
as the mercury descends. The extent of this fluctuation
may in our changeable climate amount to five degrees by
Fahrenheit's scale, the successive difference of a degree cor-
responding nearly to each twentieth part of the remaining
incumbent weight. On the tops of lofty mountains water
will boil much sooner than in the plains below. This curi-
ous fact has been noticed by several travellers, and was par-
ticularly observed by Sauvile on the summit of Mont Blanc.
A still greater variation would be experienced on the peak
of Chimborazo, the highest point of the Andes, where
water would boil with a heat farcierly superior to that which
is commonly ascribed for the boiling of spirits of wine.

It is therefore evident that, under an augmented pressure,
all liquids will more slowly reach the crisis of ebullition and
will then have acquired a more intense heat. Thus water
may be heated up many degrees above the mean point
of boiling, if it be subjected to the action either of condensed
air or of confined steam. Such is the principle of Papin's
Digerator; which, being nearly filled with water, is shut
perfectly close, and let on a good fire. As the steam thus
formed is prevented from escaping, it necessarily concentrates, and
exciting accumulated energy, it by its prodigious compression
enables the water continually to receive additional heat.
Nor would this progress at all stop, till the elasticity of the
imprisoned vapour comes to ferment every obstacle, and
bursts the vessel with terrible explosion. Accidents of that
form are extremely dangerous, and the experiment has conse-
quentiy never been pulled to its utmost practicable limits.
When the fracture takes place, not only the confined steam
is liberated, but the pressure being now removed, the excess
of heat instantaneously converts a part or the whole of the
water likewise into steam, which augments the general
effect. This we may perceive in the burling of a glass cracker; for the little bafe is shivered into atoms, and
the water which it contained is entirely dispersed, beating down
flat the wick of the candle by the violence of the sudden ex-
plosive blast.

Hence the boiling heat of a deep cauldron is always rather
greater than that of a shallow pan. This excess we might
estimate at nearly one degree of Fahrenheit, for each foot of
depth. The heat of ebullition must also rise somewhat
higher, if the steam be not allowed to escape as fast as it is
generated; for which reason there may be a slight difference
of energy between rapid and slow boiling. Hence by the
combined operation of both these causes, water deeply lodged
in the bowels of the earth, or concealed under the dark bed
of the ocean, is capable of acquiring the most intense heat
from the action of subterranean fires; a principle of which
Dr. Hutton has ingeniously availed himself in framing his
Theory of the Earth.

But the position of the boiling point is likewise modified
by the influence of chemical attraction. Thus sugar, com-
non salt, and other saline substances, have all of them a
tendency to fix water and retard the crisis of its conversion
into elastic vapour. Strong brine will not boil until it is
heated several degrees above the ordinary limit. Hence
a vessel containing fresh water, and immered in another
which is filled with brine, will gently boil, while the sur-
rounding fluid only simmeres. On the other hand, the addi-
tion
tion of alcohol renders water more volatile. In the distil-
ladion of spirits, the fermented liquor in the copper bolls
always at a lower temperature, or at some intermediate point
between the ebullition of water and that of alcohol. The
spirifuous fumes which rife carry along with them a portion
of evaporated water. Hence the necessity of rectification;
or repeated distillations, to procure alcohol in its purest state;
for the boiling boll is lowered, and consequently the pro-
portion of aqueous admixture is diminished, at each succe-
sive process. See Digest, Ebulition, Fire, Fluid, Heat, Pressure, Steam, Vapour.
Boiling of silk with soap, is the first preparation in order
to dyeing it. Thread is also boiled in a strong lixivium of
ashes, to prepare it for dyeing.

Boiling is also a part of the process for bleaching warp
threads.

Boiling to death, caldariis descuere, in the Middle Age,
a kind of punishment inflicted on malefactors, thieves, and
other criminals.

This punishment was inflicted on those who were guilty
of murder by poison, 22 Hen. VIII. cap. 19. but this act
was repealed by 1 Edw. VI. cap. 12.

Boiling is also a method of trying or assaying the good-
ess or falseness of a colour of a dye, by boiling the stuff in
water with certain drugs, different according to the kind or
quality of the colour, to try whether or not it will discharge,
and give a tincture to the water.

With this intention, red crimson silks are boiled with alum,
and scarlet with hoop, in quantity equal to the weight of the
stuff.

Boiling waters, in Natural History. See Spring, and
Water.

BOINITZ, in Geography, a town of Hungary, eleven
miles W.N.W. of Kremnitz.

BOIOI, in Zoology, the Brazilian name of the Lin-
nean fish, Anguilla.

BOIOIUM, or BOINUM, the country of the
Boii, answering to the present Polonia, which see. On
the south of it lay the Gabrea Syles, and to the south,
west, and north, the Hercynian montes. The interior of
it was penetrated with difficulty, and was little known.

BOJOWAKA, in Geography, a town of Poland, in
the patinate of Braclaw, forty-eight miles call of Braclaw.

BOQUIRA, in Geography, a town in Poland, in
the patinate of Braclaw, forty-eight miles call of Braclaw.

BOQUEIRA, in Zoology, a name by which the natives,
in some parts of America, call the rattle-jake. Supposed
to be the Ostraca borealis, of Naturalists.

BOIREL, Anthony, in Geography, born at Arguim,
in Normandy, about the year 1625, applied himself to the
practice of surgery, in which he acquired considerable reputa-
tion. In 1657 he published a Traite de places de teste, 2vo,
extracted principally from the works of Hippocrates,
Galen, and of Ambrose Paré, which he appears to have
made use of in his practice. He has added some improvements to
their practice.

Nicholas Boirel his brother, physician at Arguim, pub-
lished, in 1722, " Nouvelles observations sur les maladies
venimeuses," 12mo. Paris, which was reprinted 1711, but

Hill. BOIS, CARDINAL DU. See DEBOIS.

BOIS, GEORGE, a member of the congregation of the
Oratory, and a Latin professor in it, was born at Orléans,
in 1620. Having succeeded father Le Comte, in his place
of librarian to St. Honoré, and having presided over the pa-
pers, he finished for the press his eighth and last volume of
the "Ecclesiastical Annals of France," which was printed in 1683;
and in consequence of it he obtained a pension from the French
clergy. He afterwards undertook to write the history of the
Paritian church, and in 1690, published the first volume in folio.
The second, which he did not live to finish, appeared after his
death, which happened in 1696. This work is written in pure
elegant Latin, and contains a variety of interesting facts relat-
ing to civil as well as ecclesiastical history. Now. Dict. Hill.
and sometimes once in three weeks, and by not studying after supper, particularly towards the close of life, but diverting himself with cheerful conversation for two hours among his friends. When he was a young student at Cambridge, he received from the learned Dr. Whitaker three rules for avoiding those dilemmas which usually attend a sedentary life, to which he adhered with equal constancy and success. The first was to study always standing; the second never to study in a window; and the third never to go to bed with his feet cold. Accordingly he attained the age of 84 years, and died in 1643. Biog. Brit.

Bois, Du Lake, in Geography, lies in North America, to the north-west of Lake Superior, and receives the river de la Plaisie, in N. lat. 49°. It was formerly famous for the richness of its banks and waters, which abounded with all the necessaries of a savage life. The French had formerly several settlements in and about it; but it has since declined, though it is now recovering its primal state. The few Indians who inhabit it might live very comfortably, if they were not so immediately fond of spirituous liquors. This lake is rendered remarkable by its having been named on the part of the Americans, as the spot from which a line of boundary between them and British America was to run west till it struck the Mississipi, which, however, as Mr. Mackenzie observes, can never happen, because the N. W. part of the lake du Bois is in N. lat. 49° 37', and W. long. 94° 31', and the northernmost branch of the source of the Mississipi is in N. lat. 47° 38' and W. long. 95° 6', ascertained by Mr. Tomson, astronomer to the North-west company, who was sent expressly for that purpose in the spring of 1793. He, in the same year, determined the northern bend of the Missisipi to be in N. lat. 47° 32' and W. long. 101° 25', and according to the Indian accounts, it runs to the south of well, so that if the Mississipi were even to be considered as the Mississipi, no western line could strike it. It does not appear, says Mackenzie, to be clearly determined what course the line is to take, or from what part of Lake Superior it strikes through the country to the lake du Bois; if it were to follow the principal waters to their source, it ought to keep through Lake Superior to the river St. Louis, and follow that river to its source; close to which is the small branch of the Lake de la Plaisie, which is a common route of the Indians to the lake du Bois; the St. Louis passes within a short distance of the branch of the Mississipi, where it becomes navigable for canoes; and if the navigation of the Mississipi is considered as of any consequence by this country, from that part of the globe, such is the nearest way to get at it. The lake du Bois is nearly round, and the canoe course lies through the centre of it, among a cluster of islands, some of which are so extensive that they may be taken for the main land. The reduced course would be nearly north and south. But, according to the navigation course, the distance is 75 miles, though in a direct line it would not be so long. At about two-thirds of it there is a small carrying place where the water is low. The carrying place out of the lake is on an island, and named Portage du Rat, in N. lat. 49° 37' and W. long. 94° 25', and is about 50 paces long. The lake discharges itself at both ends of this island, and forms the river Winnebago, which is fed. Mackenzie's voyage, &c. through the Continent of North America, Introd. p. 59.

Bois-belle, or Henrichezmont, a small sowerey of France before the revolution, situate in Berry, between Bourges and Saonec, about 10 leagues in circuit, containing about 8,000 inhabitants; its principal towns are Bois-belle and Henrichezmont, which fee.

Bois-belle's, a town of France, in the department of the Cher, 15 miles N. E. of Bourges.

Bois Blanc Island, situated in Upper Canada, lies in the strait between Lake Erie and Lake St. Clair, containing from 150 to 200 acres of good land, covered with wood; the common channel, which is narrow, lies between it and the eel shore, and forms the best harbour in this country. This island commands the Detroit river from Lake Erie. A wider ship-channel, though often frequented, lies on the west of the island.

Bois-carcan, a town of France, and principal place of a district in the department of the Loiret, containing about 1,003 inhabitants; 7 leagues N. E. of Orleans, and 5 W. of Montargis.

Bois, Glacier de, one of the lower glaciers of the Alpine mountains adjoining to Mont Blanc, and the valley of Chamouny in Switzerland, from the thawed ice of which flows the river Arveron. This glacier is more than 15 miles long, and above three in its greatest breadth. The general thickness of the ice was found by M. Sauviatte to be from 80 to 100 feet.

Bois-le-duc, or the Duke's wood, a city of Dutch Brabant, seated on the river Dommel, where it receives the waters of the Aa; so called from its situation in a woody country, to which the dukes of Brabant were accustomed to return for the purpose of hunting. The wood was cut down by order of Godfrey III. duke of Brabant; and he laid the foundation of a city in 1184, which was finished in 1196, by his son duke Henry I. and much enlarged in 1252, 1453, and 1559. The city is encompassed by the Dommel and Aa, by the waters of which it may be easily inundated; and it is sometimes inaccessible except by boats. The principal forts that defend it are those of Creveœur, near the Moule; another called Ilibella; and a small fort called St. Antoine, towards Brabant. It has also a cafile, built by order of the States General, in the 17th century, as a check on the Roman Catholics then more numerous than the reformed. It has four gates; and its walls are flanked with bastions; the approach to it by land is on canways, and by water at three gates or avenues. The cathedral, erected in 1566, and dedicated to St. John the Evangelist, is one of the most beautiful structures in the Low Countries. Its wooden tower which was very lofty and supported by four stone pillars, was destroyed by lightning in 1584. It has had several other churches and monasteries. This city suffered very much in the 16th century, during the religious wars; but at length the Dutch made themselves masters of it in 1629. Pope Paul IV. founded a bishopric at Bois-le-duc in 1559, having jurisdiction over ten cities and 189 villages; the chief revenue of which arose from the abbey of Tonderlo. The district of Bois-le-duc, called "Mayerey," is situated between Holland and Gelderland, having Holland to the N., Upper Gelderland and the duchy of Cleves to the E., the quarter of Antwerp to the W., and the bishopric of Liège to the S. It is divided into five small districts, and comprehends 102 villages, and three cities, Bois-le-duc, Helmond, and Eyndhoven. On the 14th of September 1794, an engagement took place near this town between the British army and the French, in which the latter were victorious; and on the 9th of October, in the same year, the town was taken by the French. It is 18 miles E.N.E. of Breda, and 42 S.S.E. of Amsterdam. N. lat. 51° 42'. E. long. 4° 59'.

Bois, St. Maris, is, a town of France, in the department of the Saone and Loire, and chief place of a canton, in the district of Charolles, 7 miles S.E. of Charolles.

Bois d'Oingt, a town of France, in the department of the Rhone, and chief place of a canton, in the district of Villefranche, 4½ leagues N. W. of Lyons. The place contains 900, and the canton 13,501 inhabitants; the territory comprehends 1928 kilometres, and 18 communes.

BOISBEAU, in Commerce, a measure of two buflells and half of a peck at Bourdeaux in France.

BOISMONT,
BOISSEY, St. Joger, in Geography, a town of France, in the department of the Seine-et-Oise, and principal place of a canton, in the district of Coindre; the place contains 47,142 inhabitants; the territory comprehends 1,277 square kilometers, and 26 communes.

BOISZKY, a town of Poland, in the principality of Bielik, 12 miles S. W. of Bielik.

BOITIAGO, in Zoology, a sort of serpent that inhabits Brazil, and is called by the Portuguese ostra de cip. This is an amphibious species. It is decorated, as being seven or eight feet long, as thick as a man's arm, round, and pointed towards the tail, like a fisherman's awl. The body covered with five sub-triangular fans, the colour olive and yellowish. It lives on frogs, and must be of the poisonous kind, since its bite is represented dangerous.

BOITMAXDÖRF, or BOISSERD, in Geography, a town of Silefia, in the principality of Neys, 5 miles N. N. E. of Neys.

BOITZENBURG, a town of Germany, in the circle of Upper Saxony, and Ucker Mark of Brandenburg, 8 miles S. W. of Prenzlau.

BOITZENBURG, or BOTZENBURG, a town of Germany, in the circle of Lower Saxony, and duchy of Mecklenburg, at the conflux of the Boitzn and the Elbe. It was surrounded with walls in the 14th century; at this town, vessels that pass the river pay a toll, producing annually 40,000 dollars, of which the duke of Mecklenburg-Schlitz is entitled to 9000; 3 leagues E. of Lauenburg.

BOIVIN, Louis, in Biography, a distinguished scholar and pedagogue of the academy of belles lettres, was born at Montreuil l'Argile in Upper Normandy, and educated, first under the Jésuits at Rouen, and afterwards at Paris, where he settled. His acquirements in literature were various and extensive; but his temper, according to his own account, was intractable and unfeoff, enterprising, vain, and versatile. He was employed by several eminent magistrates at the associate and director of their private studies; but the litigiousness of his disposition involved himself in great trouble and expense. He published some learned dissertations on historical subjects, in the "Memoirs of the Academy of Belles-Lettres." and made great progress towards a new edition of Diodorus. He died in 1744, aged 75 years.
Boiffin, John, a younger brother of the preceding, was born in 162, and instructed by his brother, established his reputation as a man of letters at Paris, at the age of 18 years. His disposition was a counterpoise to that of his brother, and he was much esteemed for his amiable temper and manners. The abbé de Louvois assigned him a considerable pension, and in 1714 procured for him the place of under-keeper of the king's library. In 1721, he was admitted member of the French Academy, and became pensionary of that of belles lettres in 1724, on the death of his brother. He excelled in the Greek language, of which he was professor in the royal college. His printed works are "An apology for Homer, and the shield of Achilles," 1700: a French translation of "Homer's Batrachomyomachia"; a French translation of the "Oedipus of Sophocles, and the birds of Aristophanes;" "Greek Poems," much admired for their ana-creontic deficiency; an edition of the "Mathematici Veteres," 1693, fol.; a Latin "Life of Claude Pelletier," a Latin translation of the "Byzantine History of Niceratus Gregorius, with notes," 1702, which is esteemed faithful, learned and elegant. He also published several dissertations on historical and literary topics in the "Memoirs of the Academy of Belles Lettres." He died in 1726. Nouv. Dict. Hist.

Boinum, in Ancient Geography, one of the four principal cities of the Doricu country in Greece. It was celebrated on the river Pindus, to the east of Ereushus.

Bokea, in Batney, (Aubl. Guian. Sup. 58 t. 391.)

Bokeu, in New Guinea, (Aubl. Guian. Sup. 58 t. 391.)

Bokara, Bucharia, or Bogar, a famous city of Great Bucharia (see Bucharia), seated on the river Sogd, in that district, lying N.E. of the river Jihon, or Ouxus, called Sogdiana, or Al Sogd. It is situated very advantageously for trade, in a delightful and fertile country, and has repeatedly contended the metropolitan dignity with Samarcand. Besides its own wall, which was very strong, it had an outward inclosure, comprehending not only the suburbs, but a district about four leagues in extent on each side, which contained several villages and farms, watered by the river Sogd. The Sogd, which is the valley or plain of Samarcand on the east, and the mountain called Vorka on the north, were the boundaries of this territory; although its jurisdiction extended to several towns which were situated beyond its great wall. Mirkhond, in his history of the polity of Japhet, affirms, that Bokhara was the capital of Tarqueqian, in the time of Oguz Khan, one of the most ancient kings of the Moguls, or Tartars, and reckoned by the Mahomedan Tartars the eighth in descent from Japhet; and enumerates several towns which were dependent upon it. Bokhara afterwards became the capital of the state of the Samanides founded by Ismael, the great grandson of Saman, in the year of the Hegira, 257, or of Christ 909, under the caliph Motadheh. After the fall of the empire of the Samanides, the Moguls of Cathai made themselves masters of this city; but it was retaken by Mohammed, king of Karrum, in the year of the Hegira 594, or A.D. 1197. This conquest of the Karafsians alarmed the nations of the north, and drew towards Jihan very powerful armies of Moguls and Tartars, who defoliated some of the finest provinces of Asia. In the year of the Hegira 617, or A.D. 1220, Jenghiz Khan, after a siege of nine months, took this city, and ordered it to be set on fire; so that notwithstanding it remained, except the fullan's palace, called "Ark," constructed of stone, and some private houses built of stone, all the rest having been wooden edifices. He then caused a search to be made in the palace and houses, and commanded all the foldiers, who had concealed themselves, to be put to death. Bokhara continued for some years in this desolate state; but at length the Khan ordered it to be rebuilt, not long before his death. In the year of the Hegira 772, or A.D. 1370, Tamerlane took this city from Sultan Haffain, who was the last prince of the house of Jenghiz Khan; and the Timourides, or descendants of Tamerlane, retained possession of it till about the year of the Hegira 904, A.D. 1498; when Babur was defeated in the battles of Kandahar and Khurasan by Schaiik Khan, who obliged him to fly to India; and from that time Bokhara has always belonged to the Ufeks, who have maintained it by frequent wars with the Perisans. Herbelot Bib. Or. p. 190.

Bokhara was eminently distinguished in former times by the arts and sciences which flourished in it, and by its famous university, to which students resorted from all parts, and in which the celebrated Avicenna was educated. As an emporium of commerce, it was also a great famous house, to which merchants repaired from all parts of India, from the different countries inhabited by the Tartars, from Persia, and even from the dominions of the grand dignitary on one side, and from Russia and Poland on the other: so that in the warehouses and markets of this city might be seen a great variety of oriental and European merchandise. About the middle of the 16th century it was visited by Anthony Jenkins, an Englishman, who made a curious and interesting account of the part of this city that has been translated into several languages, and copied by the belles lettres. See Hackluyt's Collection, p. 355. At that period, indeed, it furnished some injury from the vicinity of Samarcand; but since it became the seat of the khan of the Ufek Tartars, who is master also of Samarcand, which he visits only in the summer season, its commerce has revived, to which the convenience of its situation in no small degree contributes. When it was visited by the English agents in 1741, (see Hanway's Travels, i. 242.) it was large and populous, subject to the Khan; standing on a rising ground, with a thick wall of earth; the houses of clay, but the numerous mosques of brick. The citizens manufactured soap and calico; and the chief products were cotton, rice, and cattle. From the Kalmucks they received rhubarb and musk; and from Bakhshan, they used to receive lapis lazuli, and other precious stones, that city being computed at 16 days' journey from Bokhara.
BOKHARA. There was gold and copper coin; and after Nadir took this city, the Persian and Indian silver became common. The inhabitants were civilized, but perfidious. In the 10th century it was distinguished by the manufacture of fine linen. N. lat. 37° 24′. E. long. 62°.

BOKI, a river of Africa, which rises in the country called Jallonkadov, between the heads of the Senegal and Joliba, and joins the Barfeling, or an arm of the Senegal, in the district of Brooko, in N. lat. 13° 11′. W. long. 6° 3′.

BOKIRA, a river of India, which runs into the sea, 50 miles W. of Jumagur.

BOKSAN, a town of Hungary, 10 miles south of Lugos.

BOL, FERDINAND, in Biography, a painter of history and portrait, was born at Dort in 1611, educated at Amsterdam, and placed as a disciple in the school of Rembrandt. He was chiefly distinguished by his portraits, which he painted in a fine, bold manner, but not with that clearness of flesh, and remarkable relievò, for which his master was famous. His colouring was too much tinged with brown in the carnations; but with this exception, his portraits had a great appearance of life and nature. As a painter of history, he manifested a good taste of composition, as well as a tolerable expression in some of his figures; but he was deficient in grace and elegance. His "Appointment of the 70 elders in the camp of the Israelites," and "Moses breaking the tables of stone," in the council chamber of Dort, are well designed and executed. In the chamber of the burgomasters there is an historical picture of "Fabricius in the camp of Pyrrhus," which is exceedingly admired. The etchings of this artist are bold and free. The following, from his own compositions, are generally much esteemed; viz. "Abraham's Sacrifice," "St. Jerom, seated in a car., holding a crucifix," and "Philosopher, holding a book." Bol died in 1681. Pilkington and Strutt.

BOLT, JOHN, a painter of landscapes, history, and animals, was born at Mechlin in 1534, and completed his studies at Heidelberg. His subjects were views of several cities and towns in the Low Countries, and different prospects of Amsterdam; and in his pictures the vessels, with the reflections of them from the water, are admirably executed. His invention and composition were very pleasing; his colouring poetizes great harmony and union; and his manner of sketching and pencilling is broad and free. Van Mander highly commends one of the paintings of Bolt, in dilluirer, the story of which is "Dedalus and Icarus." This artist etched a set of landscapes, which are "views in Holland," in the style of a master. He died in 1593. Pilkington and Strutt.

BOL, in Ancient Geography, a town of Italy, the capital of the country of the Equi, situate, according to Plutarch, 30 miles from Rome. Pliny places it in Latium. See Equi.

BOLABA, more usually pronounced BOLABABA, in Geography, one of the Society islands in the southern Pacific ocean, situate four leagues N. W. of Otaha, and inferior to it in extent, being about seven leagues in circumference. The reef that surrounds it is nearly full of fish, much larger than those that are scattered among the rocks, enclosing Otaha and Uleita. It differs from those islands, and from Hinahine, in having only one harbour on its coast; whereas the shores of the others, being strongly indented, form, like the coasts of Eimeo, numerous places of shelter for shipping. It is also distinguished by a very lofty, double-peaked mountain in its centre, and more rude and craggy than the other Society islands. Its eastern side appears barren; the western is more fertile; a low border, which surrounds the whole, and also the islands on the reef, are productive and populous. Its earthen inhabitants are said to have been malefactors banished from the neighbouring islands. As their number rapidly increased, and their military prowess gained reputation, they established their authority in Uleita and Otaha, and also in Manaholo and Tooar. Their conquests acquired so much respect, that the supposed tutelary divinity of Bolabola, named Ova, or Ora, had been adopted by the people of Taeraafo, in preference to two imaginary deities whom they formerly worshipped. The Bolabola warriors are punctuated in a different manner from those of the more eastern islands. Bolabola was discovered by captain Cook, together with the group called by him the "Society islands," in July 1769; but though he took possession of it in the king's name, he did not land upon it either in his first or second voyage. But in 1777, he landed on this island, notwithstanding the account which he had received of its inhabitants, and was introduced to Opooone, who had been represented as a very formidable chief, but whom he found old and feeble, though still much esteemed and feared. Opooone was succeeded in his government of this and the neighbouring islands by his daughter, who, in 1773, at the age of 12 years, had been betrothed to a chief named Boba, who governed Otaha under Opooone, and was designed to succeed him in the sovereignty. In 1791, when captain Edwards visited Bolabola, a man named Tafahou, had the chief authority. S. lat. 16° 32′ 30″. W. long. 151° 52′. Missionary Voyage. Introd. p. 41.

BOLACA, in Ancient Geography, a town of Poloponifus in Tripilhy, a country of Elis. Polyb. 165.

BOLAVOSANSKA, in Geography, a town of Siberia, in the government of Irkutz, 50 miles N. W. of Irkutz.

BOLBACH, a river of Germany, in the duchy of Stria, which rises in a lake, 10 miles S. W. of Völting, and runs into the Sula, near Wippelsbach.

BOLBE, in Ancient Geography, a town of Asia Minor, in Caia, called also Heralcades.

BOLBE, a marsh of Macedonia, near the Ionian sea, before Apollonia, according to Sclavus.

BOLBEC, or BOLBEE, in Geography, a town of France, in the department of the Lower Seine, and chief place of a canton, in the district of Havre; the place contains 4921, and the canton 14,171 inhabitants; the territory comprehends 105 kilometres, and 18 communes.

BOLBENA, in Ancient Geography, the name of a country in Asia, in the greater Armenia. Polyb. 165.

BOLBITINA, a town of Egypt, situate near the second month of the Nile, adjoining to the spot where Rosetta now stands.

BOLBITINUM QFIUM, a name given by Polyb. and Pliny to the second month of the Nile, from that of the town, Bolbitina, seated near the canal called "Tali." The Bolbitine branch is now called that of Rosetta, Rosettia, or Rafchid, which see. Strabo informs us (L. 17. tom. ii. p. 153.) that under the reign of Ptolemy the Elder, the Milesians, with 30 vessels, landed at the Bolbitine, or Bolbicite branch, and there fortified themselves.

BOLBONACH, in Botany. See Lunaria.

BOLBULE, in Ancient Geography, a name given by Pliny to an island of Asia Minor, situate on the coast of Ionia.

BOLCA, in Geography, a branch of the Tyrol, and Alps, situate 50 miles N.W. of Venice, and noted for its fine hills, in argilaceous schistus.
BOLCHERETSKOI, a town of Kamchatka, N. lat. 53° 34' 30", E. long. 158° 27' 30".

BOLCHOV, or Bolkhov, a town and district of Russia, in the government of Orel, situated on the river Nogra, falling into the Oka; 32 miles N.N.W. of Orel.

BOLD SHORE, in Sea Language, a steep coast or shore, so that ships may approach close to it.

BOLDSON, an island of Sweden, in the province of Halflingland, having a good harbour.

BOLE, in Mineralogy, Bol, Gem. Bol, Fr. Arcilla bolus, Werner. The colour of bole is generally an obscure Iba
tella yellow, or reddish, or whitish brown; it is also sometimes,
tough, rare, met with a greyish yellow, or flesh
red; its surface is often marked with black spots and den-
dritic figures. It occurs generally massive, seldom diffimi-
nated. Internally it exhibits a slight shining lustre. Its
fracture is perfectly conchoidal. It fuses, when broken, into
irregular, sharp-edged fragments. The dark coloured va-
rieties are opaque, the lighter coloured are more or less tran-
lucid. It has a greatly feel; adheres strongly to the tongue;
gives a thinning break; is very soft, and easily frangible. Sp. gr. 1.4 to 2.

When put into water it absorbs a portion with great eas-
genese, and then breaks down into small fragments, with a
very tenible crackling noise; but is not reduced to an im-
palpable powder. When finely pulverized, and diffused
through boiling water, it remains suspended in this fluid a
much less time than any of the phallic clays, and is entirely
separable by the filter.

Before the blow pipe it turns black, and melts without
addition, though with some difficulty, into a porous, green-
ich, grey flack.

According to a somewhat inaccurate analysis of Bergman,
the Lemnian bole contains:

Siliceous Powder  -  47.
Carbonated lime -  -  54.
Carbonated magnesia -  -  62.
Alumine  -  -  21.
Oxyd of iron  -  -  54.
Moisture and volatile matter  -  17.

102.4

Bole occurs in beds of wacke at Strigau in Silezia, and
in bafalt at Scheibenberg in Saxony; it is found also in
Tuscany and Sienna in Italy, and in the island Lemnos in
the Archipelago.

The only use of bole, at present, is as a coarse red pig-
ment; for which purpose it is calcined and levigated, and is
vended in Germany under the names of Berlin and England
red. Anciently, however, a very high rank was assigned to
bole among the articles of the Materia Medica; it was con-
sidered as a powerful astringent, sudorific, and alexipharmic,
that from Armenia and Lemnos being particularly esteemed.
The Lemnian bole, in the time of Dioscorides, was dug up in
the presence of the priests of Venus, and after being mixed
by them with goats' blood, was moulded into cakes, which
were impressed with the figure of a goat, in order to authen-
ticate them; hence it was called have.  arvensis, sigillum capri-
num: It still continued to be a consecrated remedy even in
the 17th century; according to Belon, the veil was opened
annually on the 6th of August, and after prayers said by the
priests, as much of the earth was taken out as was thought
sufficient for the ensuing year; the entrance to the veil was
then closed, and the severest punishments were denounced
against any one who should open it without permission. Part
of the earth was sent to Constantinople, where it was made up
into small cakes, and received the seal of the emperor; the
remainder was preserved in the isle itself, and was impressed
with the seal of the governor. The profits of this manufac-
ture were too considerable not to be encroached upon, and
the bolar earths, and even the clayey marls of Italy, France,
and Germany, obtained a place in the Materia Medica, under
the general name of Terra sigillata, from which, however,
you, together with the Lemnian earth, have, been at
length considerably exceeded.

Bole is also used for the body or trunk of a tree; and
hence boiling trees are those whose heads and branches are
cut off.

BOLEMOW, in Geography, a small town of Poland, in
the palatinate of Raw.

BOLENA, a town of the Morea, in the duchy of Cle-
rence, 5 leagues from the gulf of Lepanto; the see of a
bishop, suffragan of the archbishop of Patras.

BOLENBERG, a small town of the duchy of Mecklen-
burg, on the Baltic.

BOLENE, or Bollene, a town of France, in the de-
partment of Vaucluse, and chief place of a canton in the
district of Orange, 5 leagues north of Orange. The town
contains 4664, and the canton 10652, inhabitants; the
territory comprehends 1325½ kilometres, and 7 com-
muines.

BoLENI, or Bollini, in Natural History, a name given
by ancient writers to a sort of fungus of a roundish figure,
and marked with fewed ridges and lines. They are impeded
by the name called Brontici et Umbria, both being imagined
to fall from the clouds in time of thunderstorms; but they are really no other than a common species of
Echinus.

BOLESA, in Geography, a town of Spain in Arragon,
4 leagues from Huesca.

BOLEZ, a small town of Lower Hungary, in the
upper outward district of the county of Preburg.

BOLESKO, a town of Hungary, 28 miles north
of Topoltzan.

BOLESLAW, or Buntszlaw, a circle of Bohemia, on
the confines of Lusatia and Silezia, from which it is sepa-
rated by mountains. The capital is Buntszlaw.

BOLESLAVIEC, a town of Poland, in the palatinate
of Sireia, 24 miles S.S W. of Sireia.

BOLETS, in Botany [Grec. Bolos, from its globular
form], a genus of the class cryptogamia, and of the order
fungi, formed by Linneus, and distinguished from the agaries
by having what is generally the lower surface composed of
tubes instead of gills. The name was given by the Romans
to a species of excellent fungi, esteemed by them a great
delicacy, and celebrated by their historians and poets for being
the vehicle of the poison administered to Claudius Cæsar,
by his wife the younger Agrippina. This has been generally
supposed by modern botanists to be the Agarius scamplentus,
then called by Scheffer Cacarus; but Withering thinks it the
delicius of Linneus. See Agarie.

Among the moderns it was first adopted as a generic name
by Tournefort, who applied it to the common morel, the fungus
favaginosus of some of the older botanists, afterwards referred
by Linneus to his genus phallus. L. Marec, diplpated
with Linneus for altering Tournefort's names, has restored
the name boletus to the morel, and has separated it from
phallus on account of its not being perforated at its summit.
He has, in consequence, divided Linneus's genus boletus into
two; calling those that are soft and woody, agaries, and
those that are pedicelled and soft, tulius. The Linnean
agaries he has named amanita, as Dillenius and Haller had
done before him. Jussieu and Poiret concurred with him in
these alterations. But this, as Bolc well observet: Nouveau
Dictionnaire,
BOLETUS.

Dictionary, sub voce Boletus), is to increase a confusion already too great, and to overturn a nomenclature which has been generally adopted in Europe since the publication of the sexual system. For, however, Linnaeus may in some cases have capriciously changed ancient names, and however it may be wished that, in the present instance, he had called his boletus, agaricus, which would have preferred to the official agaric its customary generic denomination, it is better to let things remain as they are, than again to unsettle the language of the science, and thereby to impede its farther advancement. We shall, therefore, go on as we have begun, in adhering strictly to the Linnaean nomenclature, where we are not induced to depart from it by weighty scientific reasons.

Linnaeus has enumerated only fourteen species, and Reichard has made no addition to the number. Gmelin has extended them to a hundred and seven; but there is reason to suspect, that he has sometimes given the same species more than once under a different name. The settling of synonyms is in every part of botany an intricate and often unsatisfactory business, but peculiarly so in the class cryptogama. Withering, in the third edition of his Arrangement of British plants, has described fifty-one species, many of which have several varieties. In this number are included eight of the Linnaean species. He has also divided the three grand divisions, as they have central, lateral, or no stumps; and subdivides them according to the colour of their tubes. None of them being cultivated, we shall confine ourselves to those which are of British growth.

Stem Central.

*Tubes echites. 1. B. mollis.** "Tubes decurrent, very short; pores minute, angular; pileus concave, rich brown, fleshy; item whitish, thick, short." 2. B. fulgineus. "Tubes very short; pileus light brown, smooth, clothly to the touch, regularly convex; flesh very white; pileus pale brown, covered with a beautiful white net-work over its whole surface; root conical; resembles the elephantinus in habit." 3. B. cyanescens. "Tubes brownish with age, not decurrent; pileus brown, convex, very fleshy; flesh white, changing to a fine blue when exposed to the air; item brown, rounded at the base." 4. B. polyporus. "Tubes very short; pores circular, extremely minute; pileus brown, irregular; flesh very thin; item brown, varying from perfectly central to perfectly lateral, tough, thickening upwards." 5. B. luteocollybush. "Tubes very short; pileus tawny bay, flat, thin, leather-like; item brownish, thick as a crow-quill." First observed in Britain by Mr. Dickson, growing on rotten fitches. 6. B. aurantiacus. "Tubes not decurrent, readily parting from the pileus; pileus convex, full orange-red, vifcid, thin at the edge, and without tubes for about one-tenth of an inch; item whitish, rough, with coloured pimples; spongy, fikken." It is eaten in France when young.

* Tuber brown. 7. B. bovinus, Linna. "Tubes not touching the item, unequal in length; pileus thin at the edge, brown or olive, clammy, large; flesh spongy, white; item dirty white, with reddish flans, from three to seven inches high, and about an inch in diameter." It varies in the colour of its tubes and pileus, and in the smoothness or roughness of its item. 8. B. fuscopannosus. "Tubes decurrent, oblong; pileus yellowish brown, with red brown, scurfy, scales, the centre hollowed; flesh folid, pure white; item brownish, tapering downwards." 9. B. perennis, Linna. "Tubes decurrent, not separating from the pileus, very short; pileus flattish, hollow in the centre, fritated with hairs, marked with alternate circles of brown and tawny, leathery; item red brown, often eccentric, short, wiry, frequently coming up so thick that the pile runs into one another." There is a variety of a cinnamon colour, within and without, the B. cinereascens of Jacquin, first found in this kingdom by Mr. Dickson. 10. B. subtomentosus, Linna. "Tubes rather angular, of different shapes; pileus yellow, convex, fleshy, somewhat woolly; item yellow." 11. B. rubecullaris. "Tubes olive-colour, fixed to the item; pores rich red brown, mostly oval; pileus red cinnamon, convex, soft to the touch, rather clannpy; flesh thick, spbuggy, buff-colour, instantly turning blue when wounded; item red cinnamon, spungy within, and rich yellow, but instantly changing to a blue." 12. B. piperatus. "Tubes decurrent, deep orange, or earthy red; pores brown, open, irregular; pileus yellow, smooth, nearly flat, thin at the edge; item greenish yellow." Its pungency on the tongue and throat is like that of a capsicum. First found in England by Mr. Sowerby, in Hainault forest, Essex. * Tuber butt. 13. B. nummularius. "Tubes look from the item, very short; pores angular; pileus colour of brown horn, with a black circle at the edge, convex, dimpled, leathery, smooth, very thin, about an inch in diameter; item colour of brown horn, black at the base, smooth." Chiefly found on rotten branches of hazel. 14. B. steripes. "Tubes decurrent, very short; pileus whitish, the line of a fingsence; item black at the bottom." 15. B. felleus. "Tubes short, adhering firmly to the item; pileus yellow, convex, but very irregular; pileus yellow, thick and short." 16. B. edulis. "Tubes not fixed to the item, readily parting from the pileus; pores circular, small; pileus brown, with soft-coloured ed patches, nearly glabular, seven or eight inches across when fully expanded; flesh white, greenish when wounded; item light brownish yellow, tapering upwards." Bulliard reckons it a variety of bovinus. 17. B. gregarius. "Tubes short; pores oblong, unequal; pileus cheflnut, smooth, thin, flatish; flesh white, about three inches over; pile pale cheflnut, pinkly below, imesely swelling into the pileus. 18. B. lutes. "Tubes readily seperating from the pileus; pores round, small; pileus deep bay, rather conical, fritated, viscid; flesh white, not changing; item dirty white, cylindrical, widening at top; ring permanent." 19. B. olivaceus. "Tubes instantly turning blue when wounded; pores bright yellow, round or oval; pileus olive-brown; flesh bright yellow, turning blue when exposed to the air; item brown below, yellow or crimson above." 20. B. angustiscinus. "Tubes a little decurrent, unequal in length, changing to deep blue; pores lemon-yellow, angular; pileus crimson, changing to rich red brown, semi-globular; flesh white, changing slowly to a bluish cast when wounded; item yellow, with broad crimson flakes, apparently twisted." Found by Dr. Withering, near Birmingham, but only in one place. 21. B. chrysenteron. "Tubes decurrent; pileus gently convex, pinky-red; item yellow below, pinky upwards, swelling in the middle." 22. B. flavus. "Tubes a little decurrent; pores irregular in shape and size; pileus convex, deep orange when young, fibbing with a vivid varnish; item yellow, cylindrical; carpet white, leaving a ring." 23. B. laticlavinus. "Tubes in contact with the item; pores very minute; pileus red-fiis-bull, very convex, viscid; item bright yellow." The plant abounds with a mild milky juice. Its flavour is like that of the agaricus campesiris. 24. B. subflavus. "Tubes short; pores minute; pileus yellow, brown, olive, convex, thin, smooth, leathery; flesh thin, white; item dirty yellow, hard, tough, sometimes excentric.

Stem lateral.

* Tuber albus. 25. B. albidus. "Tubes decurrent, not perpendicular to the pileus; pores angular, very irregular in shape; pileus white, lobed; item solid, sometimes only a knob." The whole plant white, with a cottony substance, which
which is easily rubbed off. 26. B. rugosus (Lindl.) (Curtis).

"Pores very small; pileus chestnut coloured, shining, flat, marked with concentric grooves; edge thick, wrinkled; item chestnut coloured, hard, uneven, firm." 27. B. fomentarius.

"Tubes decurrent; pores very small, sometimes confluent; pileus brown, lobed, tined, leathery; item black at the base, very irregular and misshapen; sometimes nearly two feet across." 28. B. betulinus. "Tubes very short; pileus pink-brown, smooth, oblong, convex, thin, curled in at the edge; flesh white; item black; whole plant leathery." 29. B. erythros. "Tubes short, not separating; pores irregular, pileus golden yellow, variously shaped, jagged, curved; item brown, woody, dilated, thick, porous." 30. B. fimbriatus. "Tubes short, flattening; pores large, angular; pileus pale buff, speckled with feather-like scales; flesh firm, white, elastic; item dark coloured, white within." * TUBES YELLOW. 31. B. rangiferinus. "Tubes decurrent, ragged at the extremity; item an expansion of the item, dirty yellow; item dark brown, with one or more lateral branches, splitting at the end into several horn-shaped branches, either expanding into the pileus, or barren with yellow tops." The whole plant resembles the palmarined branches of some of the larger species of deer. 32. B. calcatus. "Tubes decurrent; pores small, unequal; item deep buff to chestnut, of a substance like cork, hollowed in the middle, thin, and waved at the edge; item tough, white, conical." 33. B. lateralis. "Tubes very short; pores very minute; item yellow, smooth, flat, very thin leathery; item yellow, spreading out at the top to form the pileus." * Stumble. * TUBES WHITE. 34. B. fimbriatus. "Tubes pointed; pores irregular; item white, convex, thin, downy when young, smooth when old, perfectly ressembling cork." 35. B. nudulatus. "Wholly white; eutelaceous, spreading; pores small, on the upper surface only. On decayed wood and branches of trees. 36. B. falcatus. "Tubes very short; pileus facimicellar, white, smooth, thin, soft, leathery." 37. B. fuscocolons (disdebon, Dickson). "Tubes very long, changing first to straw-colour, then to yellow; pores irregular; item smooth, semi-circular, white or tawny; flesh yellow brown." 38. B. fuscogena. "Pores fringed, angular; pileus often very large, brown, woolly, turning quite black when old. 39. B. leucogena. "Pileus orange; coloured, wrinkled, reticulated, with broad, white, arch-shaped border; pores chiefly on the upper surface of the white border." Frequent in damp cellars. 40. B. siccifolius. "Tubes short, minute; pileus thin, velvety, fringed with concentric circles of various colours." * TUBES BROWN. 41. B. cuticulatus. "Tubes long; pores minute, rich yellow brown; pileus rich dark red brown, facimicellar, very uneven, with concentric ridges." 42. B. crysanthus. "Tubes very long; pores minute; pileus leathery, thin, supine, becoming woody when old." 43. B. labriniformis. "Tubes long; pores fimbriated; pileus rugose, zoned, woody; lobes many from one root." 44. B. nitulé. "Tubes short; pores labriniformed; pileus leathery, woolly, with different shades of the same colour. * TUBES RED. 45. B. laevis. "Tubes very short; pileus brownish, arched, warty, thin, fringed at the edge." 46. B. ochraceus. "Pores angular; pileus thin, gently convex, wrinkled, woolly, greyish, whiter at the edge." 47. B. hispidus. "Tubes fringed; pileus bright red brown, in old age black, rough with brilly hairs." Posibly a variety of the velutinus. * TUBES YELLOW. 48. B. sulphureus. "Tubes short; pores minute, irregular; pileus bright aurora, streaked." 49. B. velutinus. "Pores angular, irregular; pileus large, very irregular in shape, covered with a dense pile of a livery grey colour." 50. B. igniarius. "Tubes very slender; pores very fine, yellowish, changing to red brown; pileus shaped like a horse's hoof, smooth, red brown to blackish." It is the official agaric, the agarić amadower of La Mare. For the domestic and surgical uses to which it is applied, in different parts of the continent of Europe, and the manner in which it is prepared, see the article AGARIC, in PHARMACY. 51. B. fomentarius. "Pores circular, equal; pileus white, convex, thick at the edge, uneven." To these La Mare adds the agaricus quercinus of Linnaeus, and observes, that it properly belongs to this species; for though it has the appearance of galls, they are really tubes with large misshapen pores, which near the edge of the pileus have a more regular form. Bulhaid and Woodward incline to the same opinion; and we ourselves have already ascertained that it seems to connect the agarici with the boleti. See AGARICUS.

BOLETUS (Haller). See Helvella Mitra. BOLETUS (Toumefort). See Clathrus Cancelatus. BOLETUS (Toum Michiel, and Haller). See Phallus Esculentus. BOLETUS (Gled.). See Hydnium Repandum and Aerulapium. BOLI, or BOLI, in Geography, a town of Asphalt Turkey, in the province of Natalis, 140 miles east of Conflantinople, and 74 N.W. of Angora. This town is situated on a small river, which discharges itself into the Black Sea. It is the capital of a maritime county, called by the Turks Bolivitieli, and in the interior part of its extent very mountainous. N. lat. 40° 49' E. long. 31° 26'. BOLIDES, in Meteorology. See Fire-Balls. BOLINA, in Ancient Geography, a sea-port town of the Peloponnæus, in Achæa, near Argyra. BOLINÆUS, a river of the Peloponnæus, which watered the towns of Argyra and Bolina, according to Pausanias. It discharges itself into the small gulf of Panormus. BOLINAO, in Geography, a sea-port town of the island of Lucan, or Maleía. BOLINBROKE, a town of America, in Tolbot county, on the eastern shore of Maryland, 5 miles E. of Oxford. It lies on the N.W. point of Cape town river. BOLINGBROOK, in Ancient Geography, a people of India, near the Indus, mentioned by Pliny, Ptolemy, and Steph. Byz. BOLINGBROOK, in Geography, a small town of Lincolnshire, England, is seated in a valley between the river Witham and the sea-coast. Here was formerly a very considerable castle, which was nearly demolished by Oliver Cromwell and his partizans, who also laid other parts of the town, with the church, in ruins. In the times of feudal vassalage, the castle at Bulingbroke was distinguished among the plentiful mansions of the nobles. Here the celebrated John of Gaunt, duke of Lancaster, occasionally held his court, and it was the birth-place of his fourth son, who was afterwards crowned king of England. He was the fourth Henry who sat on the English throne, and from the place of his birth was known by the name of Henry of Bolingbroke. The St. John family also derive the title of viceroy from this town. The only manufacture of the place is earthenware, and that is very inconsiderable. In the parish are 72 houses, and 283 inhabitants. BOLINTHOS, in Natural History, a name given by Arisotle, and some of the other ancient Greeks, to the name of Aelian, that is, the Donatus.
BOLPLEIRA, in Geography, a town of Russia, in the
government of Saratoff, on the west side of the Volga; 124
miles south of Saratoff.

BOLLISSUS, in Ancient Geography, a town of Asia, in
Asia Minor, near Chios, according to Herodotus. Three dates
(98 B.C.) mention a victory gained by the Athenians over the
inhabitants of Chios near this town.

BOLKOF, in Geography. See BOLCHOF.

BOLKOWITZ, a town of Silesia, 20 miles south of
Glogau.

BOLLANDISTS, in Literary History, a denomination
given to certain Jesuits of Antwerp, who were a considera-
tible time employed in collecting the lives and acts of the
saints.—Thus called from J. Bollandus, one of the first
and chief of the association.

BOLLANDUS, John, in Biography, a famous ecclesiastical
historian, was born at Tillemont in the Low Countries, in
1596, and educated among the Jesuits, by whom he was em-
ployed in collecting memorials of the church-fathers, under
the title of "Acta Sanctorum." The plan of the work was
formed by father Rothe, and it was to be arranged ac-
cording to the order of celebrating their memories in the
calendar. Bollandus, in 1643, published "The Lives of the
Saints of the Month of January," in 2 vols. fol.; followed in
1658, by those of February, in 3 vols. fol. He had begun
thofe of March, when he died in 1665. This work was con-
tinued by Hennequin, Paperboeck, and others, on a scale of
such extent, that the commencement of October reaches the

BOLLARDS, large polls set in the ground on each side
of a dock. On docking or undocking ships, large
blocks are lashed to them; and through these blocks
are received the transporting haulers to be brought to the
captains.

BOLLEN, in Geography, a town of Germany, in the
circle of Aulfs, and duchy of Carinthia, 7 miles call of
Mehlbit.

BOLLENZ. See BRENO.

BOLLIN, a river of England, which runs into the Mer-
sey, 4 miles N.E. of Warrington.

BOLLITO, in the Glafa Works, a name by which the
Italians called a sea-green colour, or artificial crytal.

To prepare this colour you must have in the furnace a
pot filled with forty pounds of good crytal, finely
ground, boiled, and purified, without any mangansey;
you must then have twelve ounces of the powder of small
leaves of copper, thrice calcined, and half an ounce of zaffer
powder; mix them together, and put them at four times
into the pot, that they may the better mix with the glafs;
boiling them well at each time of putting in the powder,
likewise they should swell too much and run over.

BOLLOS, in the mines of Peru, a denomination
given to the ingots or bars of silver procured there from
the ore by the operation of the fire, and the use of
aqua fortis.

BOLN, in Geography. See DULAM.

BOLNIAST, Edward, in Biography, practised medicine
in London in the beginning of the 17th century. He
published, in 1603, "Chemia Medica illustrata," or the true
grounds and principles of the art of physic, 8vo. London,
and the following year a translation of it into Latin, "De
linetio fundamenti et princip. art. med.:" also "Aurora
chemica fiv natura methodus preparandii animalia, vegeta-
alia, et mineralia," 1675, 8vo. An edition of this work
was published in English, in 1672. "A rational way of
preparing animals, vegetables, and minerals, for physical
use." Haller, Bib. Med.

BOLNIK, in Geography, a town of Lithuania, in the
province of Wilna, 14 miles E. S. E. of Wilkomira.

BOLOGNA, or BOLONIA, a city of Italy, the capital of
the Bolognese duchy, is, next to Rome, the largest,
finest, and richest city in the Ecclesiastical State. Its
ancient name was Tufonia, derived from Tulliano, a Tuscan
king, who is supposed to have built it 25 years before the
foundation of Rome. The name of Bologna is traced by
some to a successor of Eudoxus, called Eunus; but others
deduce it from the Boli. Its circuit is between five and six
Italian miles, and the number of its inhabitants is estimated
at 100,000; but the whole city, which includes 350 cities,
towns, and villages, is said to contain 350,000 persons.
Its figure is oblong, the length of it much exceeding the
breadth; and viewed at a distance, it bears some resemblance
of a ship, the tower of Asinelli, which is 371 feet high, being
the mast. It is surrounded by a solid and lofty brick wall,
well built, and adorned with piazzas, which extend through
the streets, and under which passengers may walk without
being incommoded by the sun or rain. The houses in
general have lofty porticoes, which would have a better effect
if the streets were not so narrow; but in this particular,
magnificence is sacrificed to convenience. For, in Italy, build-
ing is considered as a luxury. This city is seated at the foot
of the Apennines, in an extensive, fertile plain, which liber-
ally supplies the inhabitants with its rich produce. The river
Savona washes it walls, and the rivulet Reno paffes through
it, partieing into several small streams; and the latter, by
means of a canal, communicates with the Po, and affords
great advantage to the city.

The public edifices of various kinds are numerous and mag-
nificent. In the centre of the city stands a high tower, called
Degli Asinelli, from Gerardo Amelii, who built it at his own
charge in 1209; near it is the leaning tower, called Garfenda,
which by a fall of part of it is now reduced to the height of
120 feet, and which inclines, so that a plumb-line let down from
the top deviates seven feet from the wall at the bottom. Of
the palaces in Bologna, which is denominated the Public
Palace is much the most spacious, though not the most ele-
gant. In this the cardinal legislate is lodged: and it has also
apartments for the Grand Pre, as well as halls, or chambers,
for some of the courts of justice. This edifice contains
some very magnificent apartments, and a few good pictures,
of which the most esteemed are, a large one, by Guido, of
the Virgin, and the infant Jesus, seated on a rainbow; a
Sampson, also by Guido, refreshing himself with the water
which flows from the jaw-bone, with which he has just de-
feted the Philistines; and a St. John the Baptist, by Ra-
phael. The first object which strikes the eye of a stranger
on his arrival at this town, is a noble marble fountain in the
area before the Palazzo Publico. The principal figure is a
statue of Neptune, 11 feet high, with one hand stretched
out, and the other holding the trident. The body and
limbs are finely proportioned, the anatomy perfect, and the
character of the countenance fierce and majestic. This
figure of Neptune, as well as all the others of boys, dol-
phins, and sirens, which surround it, are in bronze. The
whole is the workmanship of Giovanni di Bologna, and is
highly esteemed: and yet there seems to be in impropriety
in making water flow from the breasts of the sea nymphs or
from the mouth of Neptune. Over the entrance of this palace is a bronze
figure of pope Gregory XIII., weighing 11,300 pounds,
and executed by Mougri. Near it is another statue of
pope Boniface VIII. The interior between the emperor
Charles V. and pope Clement VII. in 1539, when that
prince submitted to be crowned by the pope, is recorded by
an inscription on a copper-plate. In the Sampieri palace
see...
are several pieces by the three Caracci; one of the best ever done by Albano, representing Cupid killing his mother Venus, and, with an air of triumph, pointing at the rape of Proserpine by Pluto; and another, more admired than all the rest, and considered by the judges as the master-piece of Guido, the subject of which is the "Repentance of St. Peter," and consisting of two figures, that of the saint who weeps, and a young apostle who endeavours to comfort him. Although the nobility of Bologna are not now very rich, many of their palaces are furnished in a magnificent taste, and contain paintings, particularly those of the celebrated masters which this city had the honour of producing, that are their chief ornaments, and are held in high estimation. The palaces were built, and ornamented, when the proprietors were richer, and when the hand works of architecture, sculpture, and painting, could be procured on easier terms than at present. The galleries and apartments are spacious and magnificent; and yet there are circumstances in the most splendid, that must hurt the eyes of those who are accustomed to that perfect exactness in finishing, which prevails in English houses. The glows of the windows of some palaces is divided into little square panes, which are joined together by lead; and the floors of all are so indifferently laid, that you often feel a loose brick shakling under your feet, as you walk through the finest apartments.

Bologna is also embellished with a great number of churches and convents, which are enriched with a variety of paintings, sculptures, &c. Of the churches, of which there are said to be 208, that of St. Petronius is the largest. In this church the emperor Charles V. was crowned in 1530; and on the pavement of it, Cellini drew his meridian line, confining of pieces of red and white marble inlaid, of a hand's breadth; those in which the figures of the zodiac are cut, are a foot square. This line is half the length of the church, which is 360 feet; and at its commencement is a Latin inscription, expressing that "the whole length of this meridian line, distinguished by the figures, &c., is the fix hundred thousandth part of the circumference of the terrestrial globe." On the pavement, at the end of the line, is an inscription in white marble, denoting "the meridian line from the zenith to the tropic of Capricorn." Opposite to the vertical point, is the date MDCLII. A small round aperture has been made in the roof of the church, towards the south, through which the rays of the sun form a circular luminous spot, about eight inches in diameter, on the pavement, which shews the proper meridional point on the line every day. The church of the Dominicans is one of the most magnificent in Bologna. The chapel, dedicated to the honour of St. Dominico, who is said to have died at Bologna in 1221, is much admired. It consists of a curious dome, in which the glittering of gold appears throughout, adorned with the most capital paintings, representing the history of his life. His monument is of white marble, ornamented with beautiful baso-relieves, by Michael Angelo; and the altar, together with the large candlesticks that stand upon it, are of silver. The pavement and the walls are inlaid with marble of different colours. In the vault is deposited, amid jewels and various treasures, a manuscript of the Old Testament, or at least of the Pentateuch, pretended to have been written by Ezra himself. See Bible. It is a large folio, carefully preferred in a glass case, and was presented to the convent by the Jews, when they removed hither from Rome, and were allowed to erect a noble synagogue about the middle of the 13th century. The other principal churches are the Franciscan, in which are paintings by Guido, Luigi, Caracci, Brizio, Guido, and Tarsini; that of St. Agnes, containing, over the high altar, the martyrdom of the faint; by Domenichino; St. Bartholomew, before which stands a marble statue of St. Petronius, by Bernelli, and in which is an announcement, the nativity, and the flight into Egypt, by Albano; the church of the Capuchins, in the vaults of which is a crucifixion, by Guido; that of S. Giovanni in Monte, famous for an admirable picture of St. Cecilia, by Raphael, which is much extolled by Addison, and reckoned one of Raphael's capital pieces, &c. &c. The convents also are enriched with valuable paintings and other ornaments, as well as the palaces and churches. A Dominican convent, seated on the top of a hill, about three miles from the city, is in possession of a portrait of the virgin Mary, said to have been painted by the S. Signor Barbari. That it is lighted over the church of Sanèta Sophia at Contadnino in 1620, and it is thought to have brought many miracles in favour of the inhabitants of Bologna. A curious gallery, open to the south and closed by a wall to the north, is built all the way from the city to the convent; on the open side it is supported by a long row of pillars; and was erected by voluntary contribution in honour of the virgin, and for the convenience of pilgrims. This long colonnade is about twelve feet in breadth, from the pillars to the wall, and about fifteen feet high; all the communities of the town walk, once a year in solemn procession, to the convent, and bring the holy picture to visit the city. It is carried through the principal streets, attended by every inhabitant who can afford to purchase a wax taper. During this procession, the bells continue ringing, the cannon are fired, and the troops under arms practical the same ceremonies when the picture passes, as if it were commander in chief of the forces. In the library of the convent, belonging to the church of S. Salvatore, are many curious MSS.; particularly one of the history of queen Elia, written on yellow coarse leather in large Hebrew characters, and done up in a roll or volume, according to the original signification of the word. The canons pretend that this was written by Ezra. Here is also shown a Hebrew MS. of the O. T. written on vellum, in 3 vols. fol. said to have been written in 5531; it has, however, points or vowels. Among other MSS. amounting to about 300 in number, are the N. T. called the "Codex Bononiensis," said to be of the 11th century, containing the whole N. T. except the apocryphes, abounding with abbreviations; and a Greek version of the minor prophets and Daniel, supposed to be of the 10th century; and among the printed books are Manutius's edition of Cicero's works, 4 vols. fol. published at Milan in 1498, and a Latin bible in folio, which, by a printed advertisement annexed to it, appears to have been completed at Mentz by John Fult and Peter Schoiifer in 1462.

The univeristy of Bologna is one of the most ancient and most celebrated seats of literature in Europe; it was founded, as some say, by the emperor Theodorus in 432, but others, with greater probability, attribute it to Charles the Great. For an account of the academy of sciences, see Academy. Over the gate of the magnificent edifice appropriated to that academy, is the following liberal inscriptions: "Bononienfe Scientiarum atque artium inffituunt ad publicum totius orbis ulum." Here are observatories, with the necessary instruments for astronomical observations; a very valuable library, in three spacious rooms, where any person may study and have the use of the books four hours every day; also, apartments for the students of sculpture, painting, architecture, chemistry, anatomy, alchemy, and every branch of natural philosophy. They are all ornamented with designs, models, and statues, and every day a different statue requisite for illustrating those sciences. There are also professors who regularly read lectures. There is a hall full of models,
models in architecture and fortification, a valuable collection of medals, and another of natural curiosities, as animals, earths, ores, minerals; and a complete collection, to exhibit the study of the materia medica, and every part of natural history. There is also a gallery of statues, consisting of a few originals, and very fine casts of the best statues in Italy.

Honorary premiums are distributed every year among the artists, for the best designs in painting, sculpture, and architecture.

The anatomical theatre is adorned with statues of celebrated physicians; and the museum belonging to it supplies an abundance of anatomical preparations, and a complete suite of anatomical figures in wax: a man and woman are exhibited in the natural state; the same with the skin and cellular membrane removed, so that the external muscles of the whole body and limbs appear. In the subjacent figures the more external muscles are gradually removed, till nothing but the simple skeleton remains. These figures are very well formed, preserving the natural appearance and situation of the muscles and blood-veils with as great exactness as could be expected in a work of this nature. There are also models in wax, of particular parts, and of several of the viscera of the human body separately.

The inhabitants of Bologna carry on a very considerable trade in silks and velvets, and leather bottles, which are manufactured here in great perfection. The country produces immense quantities of oil, wine, honey, wax, flax, and hemp; and furnishes all Europe with hams, dried tongues, sausages, macaroni, sweetmeats, olive, perfumes, wax-balls, liqueurs, and essences. The people are industrious, and allowed to enjoy the fruits of their labour: the nuts are very ingenious in making artificial flowers, and imitating fruits of various kinds; and very beautiful works are also made of walnuts and rock-crystal. The markets are plentifully supplied for provisions; fruit is had in great variety, and of excellent quality; and the common wine of the country is a light white wine of an agreeable taste, which is preferred by strangers to any of the French or German wines that may be had there. The inhabitants, in general, are facetious and polite to strangers, who may receive at Bologna every kind of accommodation that may suit their taste.

Bologna long retained the name of a republic, sent an ambassador to the pope's court, and the word "Libertas" was inscribed on the arms and coat of mail, with the flattering capitals S. P. Q. R. The civil government and police of the town were allowed to remain in the hands of the magistrates, who were chosen by the senate, which formerly consisted of 40 members; but since this republic came under the protection, as it is called, of the pope, he thought proper to add ten more; but the whole 50 still retain the name of "Quaranta." One of the senators presided in the senate, and was called the "Gonfalonier," from his carrying the standard (Gonfalone) of the republic. He was the chief magistrate, was attended by guards, and was constantly at the palace, or near it, to be ready on any emergency; but he remained only two months in office, and the senators took it by turns. In the midst of all this appearance of independence, a cardinal legate from Rome governed this republic; he was appointed by the pope, with a vice-legate, and other affillants. The orders which the legate issued, were supposed to be with the approbation of the senate; or at least, they never disputed the office, which was of higher dignity than any other in the gift of the court of Rome, and continued for three years; at the expiration of that time, his holiness either appointed a new legate, or confirmed the old one in the office for three years longer. This ecclesiastical vicerey lived in great magnificence, and had a numerous suite of pages, squerries, and halberdiers, who attended him in the city. When he went into the country, he was accompanied by gamus on horseback. The gonfalonier and magistrates regulated all the usual matters which regarded the police, and decided, in common causes, according to the laws and ancient forms of the republic; but in affairs of great importance, and, indeed, as often as he chose to interfere, the cardinal legate without doubt influenced all decisions. This must be mortifying to the senators and noble families; but was left felt by the people in general, who exhibited every appearance of living under a mild and beneficent government.

Bologna was the see of an archbishop; who led for his suffragans the bishops of Crema, Borgo, St. Donnino, Modena, Parma, Piacenza, and Reggio. Bologna is 33 miles S.W. of Modena, and 145 N. W. of Rome. N. lat. 44° 29' 36". E. long. 11° 21' 15".


See BOLOGNE.

BOLOGNE, in Geography, a town of France, in the department of the Upper Marne, and chief place of a canton in the district of Chaumont, 6 miles north of Chaumont.

BOLOGNESE, Francisco, in Biography, an eminent painter of landscape and history, whose original name was Francesco Grimaldi, was born at Bologna in 1606, and educated in the school of Amial Caracci. He completed his studies at Rome; and his improvement was such, as to attract the attention of pope Innocent X. by whom he was employed both in the gallery of his palace at Monte Cavallo, and in the Vatican. Among his numerous admirers and friends were the prince Pamphilii, the pope's nephew, and many of the principal nobility at Rome; Lewis XIV. and cardinal Mazarin at Paris, who procured for him a large pension; and employed him in decorating the Louvre; and after his return to Italy, the pope Alexander VII. and Clement IX. He was peculiarly happy in his execution of landscape; and was distinguished by his fresh and cold colouring, light and fine touch, and an elegant mode of composition. His landscapes in the manner of Caracci are models of the style of that school, though the colouring of them is thought to be somewhat too green. He understood architecture, and also etched, with great freedom, talent, and spirit, a great number of landscapes, partly from his own designs, and five after Titian. His agreeable manners and amiable disposition attached universal esteem. His benevolence was singularly manifested towards a Sicilian gentlewoman and his daughter, who had retired to Rome from the troubles of his country. They lodged near him, and were known to be so poor as to want bread. As soon as Bologna was apprised of their situation, he repeatedly knocked at their door in the morning, threw in some money, and withdrew undiscovered. The Sicilian at length detected him in one of his acts of beneficence, and in token of gratitude fell at his feet. The painter raised and embraced him, and they continued mutual friends through life.

Bologne died at Rome in 1683, and bequeathed considerable property to his six children. His principal works are at Rome, and consist of large landscapes, and historical pieces in fresco. The pictures of his best time are very rare, and afford large prices. His son Alexander was a good painter in the style and taste of his father, though much inferior. Among his engravings are the "Braven Serpent," from a composition of his own, which, though flight, is a spirited, free etching, in the style of a painter. Pilkington and Strutt.

BOLOGNESE, or the duchy of Bologna, in Geography, a territory
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ritory of Italy, in the ecclesiastical state, bounded on the north by the Ferrarese, on the east by Romagna, on the south by Tuscany, and on the west by Modena; anciently inhabited by the Boii and Ligures. It was formerly a republic, under the protection of the emperor of Germany; but, in 1278, it became subject to pope Nicholas III. After many vicissitudes, pope Julius II. in 1513, annexed the city of Bologna, and all its dependencies, to the papal dominions; and in consequence of its voluntary submission to the see of Rome, it was indulged in several privileges, which it continued long to enjoy without molestation. But after the city of Bologna was taken by the French in the campaign of 1556, the legations of Bologna, Ferrara, Modena, and Reggio, entered into a treaty to form a republic, under the name of the "Republica Cispadana," or "Cisalpine Republic," which was confirmed by the eighth article of the treaty of Campo Formio, October 17, 1797.

The soil of this territory is rich and fertile, and in the vicinity of Bologna it is so much improved by cultivation, that it appears like one continued garden. The vineyards are not divided by hedges, but by rows of elms and mulberry trees; and the vines hang in a very beautiful picturesque manner, in foignons from one tree to another. The country is not only fertile in vines, but likewise in corn, olives, and peltzorage, and has, not without reason, acquired the name of "Bologna la Grasa." The Bolognese affirm, that their cheese is not inferior to that of Parme, and they sell a great quantity of it under the name of Parmesan cheese. See Bologna.

BOLOGNETTI, POMPÉII, in Biography, was born at Bologna, in Italy, about the year 1616, where he received his education, and attaching himself to the practice of physic, was admitted doctor, and then professor in medicine; at the university there, in which capacity he was much admired, his lectures being numerously attended. His works are "Consilia de praecuttione occasione mercurium, ab infinitis immunitatis contagio," 1636, folio; which, perhaps, gave birth to Dr. Mead's work on that subject, or suggested the idea of it. "Remora sempcticis," 1650, 4to. Haller. Bib. Med. Ely. Dict. Hist.

BOLOGNINI, ANGELO, a celebrated professor of medicine and surgery, who flourished in the beginning of the 16th century, was born in the neighbourhood of Padua, but practiced and taught medicine at Bologna. At the earnest importunity of his pupils, he says, he published, in 1508, "De sua ulcerum interiorum, et de uguguentis communibus in solutione continui," 4to, which has frequently been re-printed. He was of the school of Avicenna, on whose works he commented in his lectures. He gives forms for preparing ointments with mercury, which he highly extols, and says, they cure the lues, though the falivary glands should not be affected, which, however, he admits to be defirable. The latter part of his life was spent in retirement at Padua. Afric. de Moro. Gal. Hall. Bib. Med.

BOLOTOVA, in Geography, a town of Siberia, 24 miles N.E. of Nertefhink.

BOLSKHAI, a town of Siberia, on the Irrith, 240 miles E.S.E. of Tobolsk.

BOLSKHAKINA, a town of Siberia, 68 miles south of Orelva.

BOLSÉC, JERÔN, in Biography, a carmelite of Paris in the 16th century, who defected his order on account of some free opinions, and became a refugee at Ferrara. There he commenced the profession of physic, and being acquainted with Calvin, he removed to Geneva. In this city he divulged his free opinions concerning predetermination, which excited the resentment of the Genevan reformer, and which induced the magistrates of Geneva, probably at his instigation, first to imprison him, and finally to banish him, as one convicted of sedition and Pelagianism. He was afterwards expelled from the canton of Bern, whither he had retired; and failing in his endeavours to ingratiate himself with the Protestants of Paris and Orleans, he returned to the bosom of the Catholic church. He then revenged himself by writing a very flan- derous account of the life of Calvin in 1557, and another of that of Beza in 1558, the falsities of which ferox Catholics are ashamed to quote. He also wrote against Calvin's instituti6n, and his arguments were afterwards made use of by Cardinal de Richelieu. Bolec practiced physic at Autun, and at Lyons, in which latter city he died, a few years after he had written Beza's life. Gen. Dict.

BOLSENA, in Geography, a town of Italy, in the ecclesiastical state, and patrimony of St. Peter, delightfully situated on a lake that is of the name, which is about 52 Italian miles in circumference. In this lake are two islands, namely, Bifentina and Martana, with a church in each island; in the former the unfortunate Amafulnta, daughter of Theodoric, king of the Ostrogoths, is said to have been put to death in 534, by order of the ungrateful Theodatus, her cousin, whom she had admitted to a share in the government. We learn from Pliny, (Hist. Nat. i. c. 95,) that in his time these two islands were floating. He calls this lake "Tarentinum," a name which it derived from "Tarquinium," one of the principal 12 Eturian cities, whose territories extended to this lake; but it has been doubted, whether Pliny refers to the islands of this lake. Bolsena is environed with mountains, covered with trees, forming a kind of august amphitheatre. On an eminence near it may be seen the ruins of the ancient "Volatium." It is 7 miles S. of Orvieto.

BOLSOVER, a considerable market town of Derbyshire, England, has been noted for its manufactories of buckles, spurs, bridge-bits, flirrup-irons, and other similar articles; but the greater part of them is now made in Birmingham, and its vicinity. The town is governed by a constable, and two headboroughs; and a copy-hold court is held here every three weeks. Here was formerly a castle, which, according to the Domesday book, was poifessed, at the Norman conquest of England, by William Peverel. It was of considerable extent, and from its remaining fortifications was evidently of great strength. Its fortresses are mentioned by Leland, as being in ruins when he visited this part of England, in the time of Henry the Eighth. A modern mansion, still called the castle, occupies the site of the ancient buildings, and was erected by Sir Charles Cavendish in 1615. It is of square shape, and assumes the castellated character by towers at the four corners, and an embattled parapet. In this mansion, a superb entertainment was given by William Duke of Newcastle, to Charles the First and his queen in the year 1633. Upon this occasion, all the neighbouring gentry were invited to partake of the festival, which was conducted upon so magnificent a scale, that the expenses were estimated as amounting to 70,000l. Grand pageants, &c., were represented before the royal gueifs, and the fancy and taste of Ben Jonson were employed in preparing speeches and feizery upon the occasion. It now belongs to the duke of Portland, whose family obtained it, by marriage with a daughter of the earl of Oxford. In the parish church is a magnificent monument to the memory of the above-named Sir Charles Cavendish, many of whose family are also interred here. Bolsover has a weekly market on Fridays, one annual fair, and a statute fair for hiring servants, &c. It is 8 miles from Mansfield, and 145 N.W. from London. In the parish are 435 houses, and 1701 inhabitants.
At Eton, a small village three miles N.E. of Bolsover, was born Jedediah Baxter, a man who, though only a poor labourer, acquired extraordinary celebrity, for his retentive memory, and reconcile powers of calculation.

Three miles north of Bolsover are the great coal works, called Norbrig's Colliery. These belong to the Duke of Portland, and are let out to a company of persons who lend great quantities by the canal to Workop, Redford, Stockwith, &c. Bibliotheca Topographica, No. 32.

BOLSTER, among Surgeons, a soft yielding substance either laid under the head or a broken limb. Bolster is also used for a stuffing, intending to fill out or raise a flat, flapping, or hollow part. In which sense bolsters are contrived for crooked, bunched, and other distorted backs, shoulders, &c.

Bolsters, or cushions, in the Mansion, those parts which are raised on the bows, both before and behind, to rest the rider's thighs, and keep him in a posture of withstanding the disorders which the horse may occasion. Common saddles have no bolsters behind or even before.

Bolsters, in Sea Language, small cusion or bags, filled with tarred canvas or rope yarn, &c. and placed under the throusards and flays, to prevent their chafing against the treel- trees, by the motion of the sail, when the ship rocks at sea.

Bolsters are also pieces of fir fayed upon the upper side of the treel-trees, and against the thwartship sides of the main-head. They must be sufficiently long to clear the fulk-hole and after crofs-hole, and broad enough to project one inch and a half, or more, without the treel-trees, and the same in depth, and rounded from the upper to the lower edge on the outside, and nailed to the treel-trees at each end. Their use is to prevent the throusards chafing by the motion of the masts.

Bolsters of an anchor are cylindrical pieces of iron, with a hole through the middle, used when holes are to be punched, or opened with pins.

Bolsward, Bolswerd, or Bolswert, in Geography, a town of Friesland, in the United Netherlands, said to have been built in 713 by Bolswine, son of Radbode, king of Friesland, from whom it took its name. It was almost burnt down in 1475, and again in 1515, when it was rebuilt and encompassed with a rampart of earth. About a league from this town is a port, which, though much obstructed by sand, is very useful to the inhabitants.

Bolswert is about two miles in circumference, and was formerly one of the Hanse towns; and a great part of the Friesland baize, which formed a considerable article of exportation, was wove in this place. It is distant 13 miles S. W. of Leeuwarden, and 7 S. S. E. of Harlingen. N. lat. 53° 2'. E. long. 5° 24'.

Bolsward, or Bolswerd, Boetius Adam A, in Biography, an engraver and printseller of Antwerp, derived his name from Bolswert in Friesland, where his family resided, and flourished about the year 1620. He worked only with the graver, and successfully imitated the free, open style of the Bloemarts, in whose school he probably perfected himself in his art. When he worked from Rubens, he altered that style, and his plates are nearer, fuller of colour, and more highly finished. His plates from Bloemart are a set of "Twenty Landscapes," "The forefet of the hermits and hermitesses of Egypt and Palestine," and "The Nativity of Christ." The plate from Rubens, in a more finished style, are the "Resurrection of Lazarus," and its companion "The Last Supper," which is a very beautiful engraving. Strutt.

Bolswert, or Bolswerd, Somfetijs A, brother of B.
BOLTS, in Carpentry, denote pieces of wood cleat with wedges, in order to be split into half.

BOLTS, or iron pins, in a Ship, are of several forms, of which the most common have small round heads, and are used to unite two or more pieces together. Some have round flat heads, called flange-heads, with a mortise in the other end, or point, and are used to fasten moveable pieces to thole that are fixed; others have an eye at one end, for lashing or hanging blocks, &c. and are driven in half-holes, yards, caps, &c. Some have a square part left at the back of the eye, that they may not be driven on the eye, and endanger splitting. Bolts are frequently distinguished according to the places where they are used; as, 

**bain-bolts**, bolts fore-carpenters, &c.; 
**ring-bolts**, serving for the bringing-to of the planks, &c.; 
**drive-bolts**, used to drive out others; 
**set-bolts**, employed for forcing the planks, and other works, and bringing them close to one another; 
**rig-bolts**, on each side full of jags or bars, to keep them from falling out of their holes; 
**clinch-bolts**, those which are clinched or fastened at the ends, where they come together; 
**fore-lock-bolts**, made like locks with an eye at each end, which are driven into the innermost bolts or wales of a ship, to safe her fides from bruising and harts.

The following machine for drawing bolts in and out of ships was invented by Captain Bolton of the Navy, and obtained from the Society of Arts their prize of the gold medal. A model of it is preferred in the repository of the society for the use of the public. The description of it (See Transactions of the Society, vol. xvi.) is as follows:

**AAAAA** (**Plate of Ships**) is the frame of the machine. 
**B,** a cylindrical tube, having a female screw in the inside. 
**C,** a wheel with teeth attached to the cylinder B. 
**D,** an endless screw adapted to the wheel C. 
**E,** handle of the winch. 
**F,** the bolt drawing out. 
**G G,** blocks to support the frame. 
**H,** a hollow piece of steel, having on its outside a male screw, whose threads work within the female screw in the cylinder B. 
**I,** a piece of steel the bolt is to be riveted. 
**J,** a semicircular piece of steel, which is to be introduced into the notches on H, when a similar notch has been cut in the head of the copper bolt, by this means is prevented from turning in H, while drawing, K, the bolt, as prepared to receive the machine. 
**L,** a steel bar, somewhat smaller than the bolt to be drawn, having at one end a male screw, L, and at the other end another male screw that fits into the female screw of B. 
**M,** a section of a male screw, having a square hole larger than the bolt. 
**N,** a bolt with a male screw at one end ready to be drawn in.

The machine, of which a plate is annexed, consists of a frame supporting a cylindrical female screw tube. On this tube is mounted a wheel with teeth adapted to an endless screw fitted to the frame, and worked by a handle.

**To draw the bolts out.**

The head of the bolt must be cut off, and a hole made in the timber big enough to receive the male screw H, which is put over the bolt; a fit is then to be made, either by a saw or cold chisel, in the head of the bolt, to receive the key I, and which corresponds to the fit in H; the bolt head is then to be riveted as firmly as possible upon H; the cylindrical tube, B, is then to be screwed on, turning the whole machine round till it can be done no longer, when the endless screw is to be used. If the machine is of a proper strength, and the riveting well done, the power is such as to extract the bolt or break it, but generally it will be drawn out uninjured. See Drawing, &c.

To draw bolts into ships.

It will be necessary to have a bar, L, which is recommended to be made of steel, long enough to pass from the inside to the outside of the ship, and somewhat smaller than the copper bolt intended to be drawn in. This may be called a conductor. On one end should be a male screw, α; the bolt to be drawn in should be tapped at one end to receive the male screw, α, on the conductor, and at the other end should be another male screw that fits into the female screw in B; after which the operation is the same as drawing a bolt out, and the machine should be applied accordingly. When the bolt arrives at its destined place, it may be secured on the inside by a nut, which is as good a way of fastening as clinching, and much more expeditious.

This machine though only of the height of eighteen inches, will draw bolts in or out of any length; for, after the bolt has risen to the top of the tube, it will only be necessary to screw the machine back, and follow up the work with blocks of timber, as represented in the drawing.

**Note.** If the upper part of the hole in H be made square, larger than the round hole as shown at M, and the head of the bolt riveted into it, it will do away the necessity of the key, I, render the machine less complicated, and save much time and trouble.

BOLTS of an Anchor, are cylindrical iron pins for fastening the two parts of the flock together.

BOLTS for whirls, in Rope-making, are large iron pins with round heads, driven in the board over the crank-wheel for the whirls to run on.

BOLT is also used for a measure or certain quantity of canvas, amounting to twenty-eight ells.

Bolt of silk or stuff denotes a long narrow piece of indefinite measure.

BOLT of peas, in Ely, denotes the pea-flax, when the grain is threshed off of it.

BOLT, thunder. See Thunder-bolt.

BOLT-rope, in Sea Language, is a rope fowled to the edges of a sail, to prevent it from rending by the force of the wind, or any other cause.

A bolt rope should be made of fine yarn spun from the belt hemp, and sewed neatly on with good twine. To avoid fraying, the rope must be kept well twisted while sewing on, and care taken that neither too much nor too little slack is taken in: that part of the rope at the leech of the sail is to be croos flitches at every foot in length, at every seam, and in the middle of every cloth at the foot, with three croos flitches; four croos flitches should be taken at all the beginnings and fastenings off: the flitch given twice, and the last three times. Small fails have two croos flitches at every seam, and three at every fastening off.

**BOLTED flour,** which has passed through the bolters.

BOLTEL, in Building, any prominence or jutting out, as of a piece of timber, end of a beam, or the like, advancing beyond the naked of the wall.

BOLTERS, or Bolters, a kind of spikes for meal, having the buttons made of woolen, hair, or even wire. The word seems derived from the German, beulen, a fice; whence also beaten, to bolt. The bakers use bolters, which are worked by the hand; millers have a large fort, wrought by the motion of the mill.

BOLT-HEAD, a vessel used by the chemists, the same as matrats; which see.

BOLT-HEAD, in Geography, a promontory of England, on
the south-east of the county of Devon, 19 miles S.E. of Plymouth. N. lat. 50° 6'. W. long. 30° 47'. The most prominent 45 miles W.N.W. of this is called Boltiel. BOLIN and Tun, in Herclody, is a bird bolt in pale piercing through a ton.

BOLING, or Boulting, the act of separating the flour from the bran, by means of a sieve or boiler.

Boling-cloth, or Bolter-cloth, sometimes also called bolting-cloth, denotes a linen or hair-cloth for lifting of meal or flour.

That kind of bolting-cloth which is used for fitting of meal, and also for a variety of needle work, for young ladies' furbelows, and for filling up the frames of windows, &c. is woven after the manner of gauze of fine spun woollen-yarn. The wool necessary for making this cloth must be long, well-washed, and spun to a fine equal thread, which, before it is woven, must be reeled in hot water, to prevent it from shrinking. The web must be thickened; and in the manufacture of it the English have the advantage of the Germans, whose cloth of this kind is much cheaper, but much inferior in value to that of England. The bolting-cloth of this country is differ, as well as smoother, and the flour passes through it much better than through that of the Germans, which is either very little or not at all thickened. A manufactory of this cloth was established at Oltra, near Dresden, by one Daniel Kraft, about the end of the 17th century; and at Hartch near Zittau, it was introduced by one Pásky, who learned the art of making it in Hungary. The cloth which is lent from hence for sale, not only everywhere round the country, but also to Bohemia, Moravia, and Silesia, is woven in pieces, containing each from 64 to 65 Leipzig ellis; the narrowest being 16, and the widest 14 inches in breadth. Large quantities of it are also made by a company in the duchy of Wurtemberg. Bolting-cloth is also made at Gerä, as well as at Portfand and Berlin; at the latter of which places there is a manufactory of it carried on by the Jews.

Bolting-mill, a verifiable engine for fitting with more ease and expedition. The cloth round this is called the bolter.

The method of applying a sieve in the form of an extended bag to the works of the mill, that the meal might fall into it as it came from the Rolls, and of caus'd it to be turned and shaken by the machinery, was first made known in the beginning of the 16th century, as we are expressly told in several ancient chronicles.

Boling, or Boulting, among Sportmans, signifies routing or dislodging a fox, rabbit, or badger, from its resting place.

Boling, in Law, a method of pleading, or arguing, formerly in use in the courts of court; inferior to mooting. The case is argued first by three students, then by two barristers; an ancient, and two barristers sitting as judges.

The word comes from the Saxon bolte, a house; because done privately within doors, for instruction.

BOLTON, EDMUND, in Biography, an English antiquarian writer of the 17th century. By religious profession he was a Roman Catholic, and probably enjoyed some office under Villiers duke of Buckingham. He was diligent in his researches into subjects of history and antiquities, and was the author of several works, of which the principal are the following: viz. « A Life of Henry II. » « Elements of Armories, » Lond. 1616. « A translation of Florus, » « Nero Caesar, or Monarchy deprav'd, » Lond. fol. 1624, in which he attempts to establish the improbable opinion, that Stonehenge was a monument to the memory of queen Boadicea. His « Vin diece Britannica, » left in MS., was designed to prove the great antiquity and early importance of London. From his performances, Bolton appears to have professed the credulity, nationality, and love of trifles, often attendant on antiquarian studies, when they are not directed by taste and judgment. The time of his death is not known. Biog. Brit.

Bolton, in Geography, a village of Yorkshire, in England, had a very considerable manufactory of canons regular, of the order of St. Austin, founded in 1120 by Robert de Romet, and this had afterwards other benefactors, and at the dissolution its annual revenues were valued at 212s. Part of the religious house still remains, and one room is appropriated to a free school, which was founded by Robert Boyle, esq. This village is rendered remarkable from being the birth-place and residence of Henry Jenkins, who was born in the year 1500, and lived to the great age of 160 years. He enjoyed a constant rate of good health, and poll'd his faculties to the last year of his life. See Longevity.

Bolton-le-Moors, is an ancient manufacturing town of considerabe consequence in Lancashire, in England. It may be considered as the original seat of the cotton trade in this country, and for the manufacture of ornamental and fancy goods is still particularly celebrated. Leiland, in his Itinerary, notices the cottages (then a species of woollen) and coarse yarns which were brought to this town in his time, and observes, that many villages in the vicinity were engaged in this manufacture. Coal-pits were also worked at that time, and coal-scarcely obtained in abundance from pits in the neighbourhood. The making of fullians was introduced into this town, at a very early period, and still continues a prominent object of trade. During the civil wars in the reign of Charles I, Bolton was besieged by prince Rupert in 1644, and many of the inhabitants were killed. The town is well built, and has rapidly increased in size and population. It is seated in a flat district, as its name partly implies. The advantage of canal conveyance to Manchester and Bury, has proved highly important to the town, whose manufactories are thereby greatly promoted. Bolton has a free school, of which Ainsworth, the author of the Latin dictionary, was once a master. The prosperity of Bolton may be partly estimated from the following comparative rate of its population. In the year 1775, there were 5,339 inhabitants in this town and Little Bolton. These were augmented to 11,759 persons in 1789; and in 1801, when the population of the county was estimated by order of the house of Commons, there were found to be 14,766 houses, and 17,413 inhabitants in the township and chapelry of Great and Little Bolton. The principal mart for the sale of goods made at this place is Manchester, where the manufacturers resort on Tuesdays, Thursdays, and Saturdays. "The neighbourhood of Bolton," observes the judicious Dr. Aikin, "has been distinguished for producing men of great talents in mechanical invention, who have generally been wholly uneducated, and indebted only to native powers, and the habit of observation. The most celebrated of these was Sir Richard Arkwright, of whom false pride and prejudice alone can think it derogatory to say, that he palled a great part of his life in the humble station of a barber in the town of Bolton. His mind was so ardently engaged in the improvement of the mechanism used in the manufactures, that he could fearlessly keep above want by the exercise of his proper profession; but his perseverance and ingenuity were at length rewarded with a measure of opulence, which nothing but the tide of prosperity in a commercial nation could bestow." See Arkwright.

At Smithfield, an old hall, or manse, north of Bolton, formerly belonging to the Paucong family, is a curious old
old wainscotted room, the panels of which are adorned with upwards of 50 heads, cut in wood. This hall is flown and visited as a curiosity, from a superfluous prevalent opinion that an impression of a foot may be seen in the stone floor made by one Martha a martyr, in the reign of queen Mary.

Rivington, in the parish of Bolton, is a conspicuous hill, crowned with a building called Rivington-pike. Some veins of lead and calamine have been worked in this neighbourhood, but have not hitherto proved very fortunate to the adventurers.

Bolton is 11 miles from Manchester, and 157 miles N.W. of London. It has a market on Mondays, and two fairs annually. Aikin's Description of the Country round Manchester, 4to. 1795.

Bolton, a township of America, in Chittenden county, Vermont, tented on Onion river, about 144 miles N.N.E. from Bennington, containing 88 inhabitants.—Alfo, a township in Tolland county, Connecticut, incorporated in 1720, and settled from Weathersfield, Hartford, and Windsor, 14 miles E. from Hartford.—Alfo, a township in Worceler county, Massachusetts, 18 miles N. E. from Worceler, and 20 W. from Bolton; containing 935 inhabitants, and a good bed of lime-tree.—Alfo a township in Washington county, New York, between Sroon lake and lake George, distant 10 or 12 miles S.E. of Ticonderoga, and containing 959 inhabitants.


Gen. Char. Coll. common; innumerable, with nearly equal linear, acute scales. Cor. compund, radiate; florets of the disk tubular, funnel shaped, Ieave-numeros, of the ray many, linear, entire, piliferous. (Schreb.) three-toothed. (Bofc.) Pyl. germ oblong; style filiform; frugmas two, onle of the ray revolute. Parietum. none; calyx un- changed. Seed solitary, comprifed, flightly toothed, two- horned; receptacle naked, honey-combed, hemifpheric.


Species. 1. B. afeeroides, (matricaria aft. Linn. Mant. 116.) "Leaves quite entire." Stem upright, two feet high, even, scarcely angular, slightly bræcked; leaves alternate, remote, fowle, lanceolate, even, at the base down to the fave, ragged about the edge; panicle thin, flufih, with one- flowered peduncles; disk yellow; ray pale fcelor-colour.

2. B. glaflyfola. "Lower leaves fett." Five or fix feet high. Both species are natives of South America, flower late in the autumn, and were cultivated by Mr. Miller in 1788.

BOLSACKEN, or BOLTSACK, in Geography, rocks at the N. entrance of the Great Belt, 5 miles S.E. from the island of Samöe. N. lat. 55° 48'. E. long. 10° 40'.

BOLTY, in Ichthyology, a fift of the Labrus genus. (Labrus niloticus of Linnaeus), that is found in the Nile. It is figured and defcribed by Sonnini, in his "Voyage en Egypte." This, it is observed, is one among the small number of fiftes that inhabit the river Nile, the fleth of which is delicate, and of a good flavour. Dumberton, in the French Encyclopedia, calls the species Nébulens, on account of the obscure spots with which the fins are marked.

BOLZNITZ, in Geography, a river of Germany, which runs into the Elber near Elberwerda, in the margrave of Meifen.

BOLU, a mountain of Asia, in Armenia, 144 miles S.E. of Erivan.

BOLUADIN, a town of Asia Minor, in the province of Natcha, 38 miles N. of Karni-fufer.

BOLUCKOIF, in the Turkish Affairs, denotes the chief of a company, or a captain who has the command of an hundred janizaries.

BOLURUS, in Ancient Geography, a town of Greece, in Thesprotia.—Alfo a town of Illyria, which belonged to the Trallians. Steph. Byz.

BOLUS, in Pharmacy, is a very useful form of extemporary prescription adapted to a variety of cases in which a more solid or a more liquid form would not answer the purpose. The confidence of a bolus is the same as that of an elixir, that is, about as soft as dough, so as easily to float down the throat without falling to pieces. As it must in some degree be tasted while swallowed, it generally consists of the medicine in powder, worked up to the proper tenacity by means of some graceful syrup; soft extract of liquors, or a palatable conserve; or, if the medicine be an oil, balsam, or other liquid, dry sugar, with flour, almond-paste, and the like, are added to bring it to the due consistence. It is intended to be only a single dose.

The substances most proper to be exhibited in this form are those that are very heavy, and scarcely to be suspended in any liquid so as to be drunk off, such as calomel, tin-powder, flatulents, ethiops mineral, or those that are too bulky to be made into a convenient number of pills, and are nauseated by the patient in a liquid form, such as cinnchona, chamomile, burnt-powder, Dover's powder, valerian root; or some of the stronger acids and aromatics, as guaiacum, camphor, musk, esir, ammonium; or those that are little soluble in the stomach, unless previously mixed with some easily soluble matter, and yet do not readily combine with liquid sufficient to be drank off, as oil of turpentine, the balsams and the like, mixed with sugar and flour. Dolaxis differ from troches in this, that the latter are made firmer, though equally soluble, and being intended for flow solution in the mouth; they consist only of infusip, or not unsalable ingredients. Substances that readily become very moist, such as the kali preparation, should not be used in this form, unless the bolus is intended to be taken immediately: but on this head least caution is required than in compounding elixirs.

This form of medicine should be avoided where the patient is in a state in which the power of swallowing is with difficulty exercised, as in apoplexy, and other comatose disorders; in some ptyalostomic and painful affections of the throat; or where the ophaghus is naturally very narrow. Alarming accidents have sometimes arisen from a neglect of these precautions. It is likewise difficult to get very young children to swallow them, unless made extremely thin. These minutiae will not appear trivial to those who are in the habit of personally watching the trouble and difficulty which daily attend the exhibition of medicines, and are so liable to defeat the most judicious plans of the prescriber.

In hospitals and dispensaries this form is very commonly adopted, as it is prepared with little trouble, and is economical in the more expensive drugs, no more of them being employed than the immediate wants of the patient require.

BOLUS-HEAD, in Geography, a cape of Ireland, on the south-west coast of the county of Kerry, 38 miles S.W. of Killarney. N. lat. 51° 44'. W. long. 10° 12'.
BOLWYCK, a town of Norway, 49 miles W. of Tonsberg.

BOLZANI, Urbano Valeriano, in Biography, one of the revivers of literature in the 15th century, was born at Bellano about the year 1420. Having entered, when young, into the order of the Minorities, he travelled through Egypt, Palestine, Syria, Arabia, Greece, and Thucsus, observing whatever was curious either in nature or art. In the course of his perambulations, he twice ascended the summit of Zima, and surveyed its crater. As a strict observer of his vows, he declined accepting the honours and dignities which were offered him. His fixed abode was at Venice, where he taught the Greek language, and, among other scholars, instructed the learned Gesu-Antonio Diamasso, and John d'Anclis, afterwards pope Leo X. He was the first who facilitated the attainment of the Greek, by composing a grammar in that language; of which the first edition was printed in 1497, and a second, much enlarged, in 1512. He died in 1524.

BOLZANO, or Bolzen, in Geography, a town of Germany, in the Tyrol, seated on the river Etsch, near its confluence with the Adige, famous for its four annual fairs, each of which continues a fortnight, which are much respected by Italian and German merchants; 6 leagues S. W. of Brixen, and 9 N. of Trent. It was taken by the French in March, 1797. N. lat. 46° 28', E. long. 14° 12'.

Bolzano, a town of Italy, in the Vicentine, belonging to the state of Venice, 2 leagues E. of Vicenza.

BOM, in Zoology, the name of an American serpent of the Boa genus, called likewise boma, and boma. It is said to grow to a vast size, and to be perfectly harmless; but the latter assertion is improbable; it is not certainly of the poisonous race of serpents. This is called the boma, because it emits a remarkable noise resembling the sound of that word, when pronounced with a deep hollow voice.

BOMAL, or Bohemal, in Geography, a town of Germany, in the duky of Luxembourg, seated on the Ourte, 7 miles S. W. of Spa, and 53 N. W. of Luxemburg.

BOMANGIY, a town of Africa, in the kingdom of Angoy, or Gov (which fee), situate on the north bank of the river Zaire. S. lat. 5° 36'. W. long. 14°.

BOMARZO, a town of Italy, in the ecclesiastical state, and patrimony of St. Peter, once episcopal; 14 miles from Civita Castellana.

BOMB, in the Military Art, a hollow iron ball, or shell, furnished with a vent, by which it is filled with gun-powder, and which is fitted with a fuse, or hollow plug, by which it gives fire, when thrown out of a mortar.

In the English artillery, bombs are now commonly called shells.

The word bomb comes from the Latin bombus, crepitus, or fibratus ani: by reason of the noise it makes.

The method of preparing a bomb is as follows: a hollow iron globe A B (Plate Gunny), is call'd pretty thick, having a round aperture A, by which it may be filled and lighted; and circular angle C D, of hammered iron fixed in the mould when they are cast, for the commodious putting it into the mortar, as well as for carrying it from one place to another. In France, the handles are cast iron; but they are thus rendered more clumsy, and liable to break sooner than the others.

It has been used to make the lower part of the bomb the required shape, that it may fall on that side, and never on the fusee, and that it may also better resist the shock, or imprefion of the powder by which it is discharged from the mortar; but Mr. Muller thinks that neither of these considerations is of any great importance, and recommends rather to make the rounds equally thick, because they would thus burst into a greater number of pieces. Artillery, p. 151., in his System, &c. vol. v.

After the shells have been gauged and examined as to their dimensions and weight, they must be well searched within and without by means of a copper grater, to ascertain whether there be any holes or cavities in them; and the iron pins or spikes at the bottom of the inides, which supports the corps when they are cast, should be beat down or broken off. They are then to be hammered all over, to knock off the laces, and discover flaws; and no hole, in the large shells, is allowed, of more than a § of an inch deep. An empty fusee is then driven into the fuse hole; and the shell is suspended in a tub of water, so that the water may cover it, without running into the fusee; in this situation the nose of a pair of helves is introduced into the fusee hole, and several strong pins given with the helves; and if no bubbles rise in the water, it is concluded that there are no holes in the shell, but that it is found and fit for service.

When the shell has been thus proved, and is found to be dry within, gun-powder is introduced into its cavity, by means of a funnel; but it is not quite filled. Artilleryists, through they agreed that shells shou'd not be quite full, have not ascertained the precise quantity which would serve for their bursting into the greatest number of pieces. Captain Detaguilliers, after having made several experiments, apprehends, that the most proper quantity of powder is two thirds of the weight which would fill the cavity. A little space or liberty is left, that when a fusee or wooden tube, ρ, of the figure of a truncated cone, is driven through the aperture, the powder may not be bruised. This fusee is pressed in at first by the hand as far as it will go, and then drove with a mallet as hard as possible, taking care, however, not to split it; for if the lead crack were in it, the composition would give fire to the powder, and the shell would burst either in the mortar, or in the air, and thus do no execution. For the method of preparing and filling the fusee, see Fusees.

This fusee is set on fire, and burns slowly till it reaches the gun-powder, which goes off at once, bursting the shell to pieces with incredible violence; whence the use of bombs in besieging towns. Special care, however, must be taken, that the fusee be fo proportioned, as that the gun-powder do not take fire before the shell arrives at the defined place; to prevent which, the fusee is frequently wound round with a wet clammy thread.

The fusees are driven into the shell, so that only about an inch and a half come out beyond the fuse hole; and then the shell is said to be fixed. They are charged long before there is occasion to use them; and in order to secure the composition with which they are filled, the two ends are covered with a mixture of two parts of pitch, one of rosin, and three of bees-wax, which will guard the composition within from the access of air; and it will thus keep as long as you please. When the fusee is to be put into the shell, the little end is opened or cut off; but the great end is never opened till the mortar is to be fired.

Bombs or shells are made of different magnitudes, from that of 17 or 18 inches diameter downwards; the very large ones are not used by the English, that of 13 inches diameter being the largest size now employed by them. The following table shews the weight, dimensions, &c. of English and French shells.

\[ \text{Table} \]

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>Weight (pounds)</th>
<th>Dimensions</th>
<th>Remarks</th>
</tr>
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<tr>
<td>17</td>
<td></td>
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<tr>
<td>16</td>
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<td>13</td>
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\[ \text{End of Table} \]
**BOMB.**

**SHELLS.—Their Dimensions, Weight, &c.**

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<tbody>
<tr>
<td>13 Inch</td>
<td>1 3 2</td>
<td>12 3/4</td>
<td>10 4</td>
<td>1 1/4</td>
<td>1 1/2</td>
<td>2 1/4</td>
</tr>
<tr>
<td>10 Inch</td>
<td>0 3 9</td>
<td>9 1/4</td>
<td>4 5</td>
<td>1 1/2</td>
<td>1 1/2</td>
<td>2 1/4</td>
</tr>
<tr>
<td>8 Inch</td>
<td>0 1 11 1/2</td>
<td>7 1/2</td>
<td>2 12</td>
<td>1 1/2</td>
<td>1 1/2</td>
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<tr>
<td>5 Inch</td>
<td>0 1 12 1/2</td>
<td>5 1/2</td>
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<td>4 Inch</td>
<td>0 0 8</td>
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<td>0 5</td>
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<td>1 1/2</td>
<td>0.653</td>
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<tr>
<td>H. Gren.</td>
<td>0 0 3 11</td>
<td>3 49</td>
<td>0 1 1/2</td>
<td>2 77</td>
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**French Shells, in French Weights and Measures.**

<table>
<thead>
<tr>
<th>Inches.</th>
<th>lbs.</th>
<th>Lines</th>
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<tr>
<td>12-Inch</td>
<td>150</td>
<td>12</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>10-Inch</td>
<td>100</td>
<td>10</td>
<td>10</td>
<td>0</td>
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<tr>
<td>8-Inch</td>
<td>43</td>
<td>8</td>
<td>4</td>
<td>1</td>
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<tr>
<td>6-Inch</td>
<td>23</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>4-Inch</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>0</td>
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Mr. Muller gives the following proportions, from the 13 inch bombs, now commonly used, and observes that they may be easily adjusted to any other calibre, by making the diameter of the shell to 30, as any part expressed in inches, to the same part expressed in parts of the diameter divided into 30 equal parts.

- Diameter of the bore = 30
- Diameter of the shell = 29.5
- Diameter of the hollow sphere = 21
- Thickness of the metal at the fuelle-hole = 3.5
- Thickness at the opposite part = 5
- Diameter of the fuelle-hole = 4
d

Weight of the shell unloaded,

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<td></td>
<td>11.7</td>
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Weight of the powder contained in the shell

|       | 236.5  |

In order to find how much powder will fill a shell; divide the cube of the internal diameter of the shell in inches by 37.3, which will be the number of pounds of powder. To find the size of a shell for containing a given weight of powder; multiply the number of pounds of powder by 37.3, and the cube root of the product will be the diameter in inches.

Bombs only differ from granades, in that the latter are much less; and instead of mortars are thrown out of the hand. Bombs are thrown not only out of mortars and howitzers; but out of cannon. The following shells may be fired from guns; viz. hand-granades from 6-pounders; 4 1/2 shells from 12-pounders; 5 1/2 shells from 24-pounders; and 8-inch shells from 68-pdr. cannonades. Shells may be also thrown from guns to short distances, in case of necessity, though the shell be not of a diameter sufficient to admit the shell. For this purpose the gun may be elevated to any degree that will retain the shell upon its muzzle, which may be affixed by a small line passing from the lugs of the shell round the neck of the gun. To produce a greater effect, the space between the shell and the charge may be filled with wads, or some other substance.

Bombs may be used without mortar-pieces, in the manner practised by the Venetians at Candia, when the Turks had poifTed themselves of the ditch, rolling down bombs upon them, along a plank set sloping towards their works, with ledges on the sides to keep the bomb right forwards. They are sometimes also buried under ground to blow up.

See Caisson.

M. Blondet, who has written on the art of throwing bombs, observes that the first bombs were those thrown into the city of Wattehendouch, in Guelderland, in 1585, though others pretend they were in use a century before, viz. at the siege of Naples by Charles VIII. in 1495. Stowe says (p. 584), that mortars and bombs were invented in 1544 by foreigners, whom Henry VIII. employed. But they came not into common use before the year 1634, and then only in the Dutch and Spanish armies. One Malthus, an English engineer, is said to have first carried them into France, where they were put in use at the siege of Collioure, in 1642.

The art of throwing bombs makes a branch of gunnery, founded on the theory of projectiles, and the laws and quantities of gun-powder.
Meil. Blondel, Guifié, de Ressons, de la Hirt, and others have written expressly on the art of throwing bombs. 

**BOMB-battery.** See **Battery**.

**Bom-bay,** is a kind of cloth filled usually with bombs, sometimes only with gun-powder, placed under ground, to tear and blow it up in the air, with those who stand on it.

Bomb-cheets were formerly much used to drive enemies from a post they had seized, or were about to take possession of; they were set on fire by means of a flame held at one end, but they are now much disused.

**Bomb-cats.** See **Water-bomb**.

**Bom-bells,** which are small ships formed for throwing bombs into a fortress, are said to be the invention of M. Reyneau, or Reuari, and to have been first used at the bombardment of Algiers, in 1681. Till then, it had been judged impracticable to bombard a place from the sea.

The bomb-barges on the old establishment carry one 13-inch, and one 12-inch mortar; with eight 6-pounders, besides swivels, for their own immediate defence. The modern bomb-veffels carry two 10-inch mortars, four 68-pounders, and six 18-pounders caronades; and the mortars may be fired at as low an angle as 20 degrees; though these mortars are not intended to be used at sea, but on very particular occasions, their principal use, at these low angles, being to cover the landing of troops, and to protect our coasts and harbours. A bomb-barge is generally from 60 to 70 feet long from stem to stern, and draws eight or nine feet water. The tender is generally a brig, on board of which the party of artillery remain, till their services are required on board the bomb-veffel. The following instructions serve for their management and security in action.

1. A Dutch pump, filled with water, must be placed in each round-top, one upon the fore-cable, one on the main-deck, and one on the quarter-deck; and furnished with leather buckets, for a fresh supply of water.

2. The booms must be wetted by the pumps before the tarpaulins and mortar-hatches are taken off, and a wooden beam, 5 feet square, is to be hung under the booms, over each mortar, to receive the fire from the vents.

3. The embrasures being fixed and properly secured, the port must be let down low enough to be covered by the sole of the embrasure. Previous to its being let down, a spar must be lashed across it, to which the tackles are rigging it again; but it must be fixed; this spar serves to project the tackle clear of the explosion.

4. The mortars must not be fired through the embrasure at a lower angle than 20 degrees, nor with a greater charge than 5 lbs. of powder.

5. Previous to firing, the doors of the bulk-head, under the quarter-deck, must be shut, to prevent the cabin being injured by the explosion.

6. The bed must be wedged in the circular curb, as soon as the mortar is pointed, to prevent re-action; the first wedge being driven tight before the rear ones are fixed, in order to give the full bearing on the table, as well as the rear of the bed. The holes for dog-bolts must be corked up to prevent the sparks falling into them.

7. When any shells are to be used on board the bomb, they must be fixed on board the tender, and brought from thence, in boxes in her long-boat; and kept along-side the bomb-ship till wanted, carefully covered up.

8. In the old constructed bomb-veffels it is necessary to hoist out the booms, and raise them along-side previous to firing; but in these new ones, with embrasures, only the boats need be hoisted out; after which the mortars may be prepared for action in 10 minutes. See **Ketch**.

**BOMBA,** in **Zoology,** a species of **Trichoda,** one of the genus of **Animalecula** or **Vermes* infaufiora.** This kind is briefly described as being of a changeable form, with a few hairs on the anterior part. This is found abundant in stagnant water; the body is thick, somewhat pellucid, of a yellowish colour, and filled with paler molecules. **Mull.** Gen. &c.

**BOMBARDE, BOMBARDE,** a piece of artillery anciently in use, exceedingly short and thick, and with a very large mouth, by some also called *klaaflyk,* by the Dutch *donderbewi.*

Some derive the word, by corruption, from Lombard, as supposing this piece and used in Lombardy. Du-Cange, after Vitellus, derives it from *bombis et ardeus,* Menage, from the German *bombarden,* the plural of *bombe,* *balle.* But we doubt whether the Germans knew any such word. It is no unusual thing with Menage, and many other etymologists, to give derivations from words of their own making.

There were some of these pieces said to have carried ball of 600 pounds weight; Froissart mentions one of fifty feet long. To load them, they made use of creases, &c. The bombard is supposed to have been in use before the invention of cannon.

Bombs can hardly be supposed to have been of metal, nor charged with gun-powder. They were rather a fort of baliste for throwing stones, and were played with ropes.

**BOMBARDE,** in **Geography,** a fort and village of the island of St. Domingo, about 3 leagues N. of La Plate-Tonne, 6 S.E. of the Mole, and 22 from Port-de-Paix. N. lat. 19. 42.

**BOMBARDEUR,** an engineer, or perfon, whose business is to take care of the firing and throwing bombs out of mortars. He first drives the fuse, then fires the ball, points, loads, and fires.

**BOMBARDET,** in **Entomology.** See **Carabus**.

**BOMBARDEING,** the art or evil of attacking a city or fortress, by throwing bombs into it, in order to ruin or let on fire the houses and magazines, and do other mischief.

Bombarding is not reckoned the most honourable method of making war, as it rather tends to do mischief to the inhabitants than to the works.

**BOMBARIN,** in **Zoology,** the name used by some old writers for the Hippopotamus.

**BOMBASINE,** in Commerce, a kind of silk fluff manufactured at Milan, and thence sent into France and other countries. The French also use the word bombasse for fluff made of cotton, more properly called dimity.

**BOMBAST,** in Rhetoric, denotes a style too high and pompous for the subject and occasion; or a certain manner of eloquence and action, which is grand when supported by dignity in the sentiment, and force in the expression, but never fails to appear ridiculous where the sentiment is mean, and the expression flat. See **Style**.

**BOMBAK,** in **Botany,** a name given to the common cotton tree by Scarpion an Arabian physician in the beginning of the ninth century; Pliny had before called cotton *bombyx.* Gen. **BapBex.** Suld. j cotton. Lin. Gen. 835. Reich. 194. Schreb. 117. Jussieu, 275. Wilden. 1284. L. Marc. Fromanger. Chas. and order of *Morinda Phylania.* Nat. Ord. *Colomusfera.—Malvaceae.* Jaff. Gen. Char. Col. permanent, either of one leaf, tubular-campanulate, three, four, or five-cleft; or of five unequal leaves. Cor. either five petals, or one petal five-cleft. Stamin filaments five or more, connate at the base, sometimes flitily, sometimes tubular. Fil. germ superior, turbinate-oblong. Stigma capitate, with five teeth more or less developed. **Pericarp** large, oate-oblong, membranous and almost woody, five-celled, five-valved. **Seds** numerous, round, woolly. **Recept.** columnar five-corned, forming the partitions.
BOM

Species, 1. B. pentandrum. (L. Marc. Tab. 587.) "Flowers peptandrous." Linn. "Anthers bent; leaves in fieves." Willd. A tree fifty or eighty feet high. Bark greenish, smooth, easily separated from the wood; often sprinkled, especially when young, with large, conic, fimplici tubercles; branches near the summit, pendant; leaves on long petioles, digitate, foliades from five to nine, either entire or serrate, lanceolate, ending in a point; flowers in a simple umbel; partial peduncles about an inch long, with several alternate bracts; petals five, white and velutery without, smooth, concave, and of a purple or delicate rose colour within; anthers two or three, on a filament, twisted together; fruit half a foot long, shaped like a cucumber, very slender at its base; seeds oval with a sharp point, enveloped with a great quantity of short dark cotton which is not firm, but used for stuffing pillows, mattrales, &c. Rumphius says that the valves open at the base. Plumer affords the contrary. Jaquin, who saw the living plant in fruit, gives no information on the subject. A native of both Indies. Cultivated by Mr. Miller in 1739.
2. B. criophorus. (Cavan. Tab. 152.) "Flowers peptandrous; anthers simple, erect; leaves in fieves." Wild. Trunk very spiny; leaves terminated by a filament, very smooth; calyx short and very large; petals three inches long, white, covered without with a short thick down, smooth within, concave, and rounded at their extremity; tube formed by the lower part of the filaments, bottle shaped; anther linear, longitudinally fixed to the upper part of the filament. Found by Commeron in Brazil.
3. B. pyramidalis. "Stem without thorns; leaves cordate, angular; flower peptandrous; anthers united; fruit very long, pyramidal." Cavan. A large tree with very spreading branches; wood white and fo light that fitters use it instead of cork; bark thick, fibrous, cinnereous, marked with whitish spots, and reddish wrinkles; leaves a foot in diameter, strongly curved, green on the upper, yellowish and downy on the lower surface, long and thick petioles; flowers numerous on long peduncles; coroll large, monopetalous, campanulate, deeply divided into five segments; calyx large, reddish, green, campanulate, with five blunt divisions; filaments five, thick, supporting as many large nearly arrow-shaped anthers which are spirally united and enclose the summit of the filaments; filament long; calyx and petals one, the other; flower filiform, club-shaped, marked at the end with five spiral furrows; capsule furrowed, from eight to ten inches long; seeds very small, somewhat egg-shaped, enveloped with fine, short, reddish cotton. A native of the Antilles.
4. B. grandiflora. "Leaves in fieves; flowers pentapetalous, large, polyanthrous; filaments united into a tube at the base." Cavan. Calyx large, expanding with four blunt divisions; corolla super, of five petals, each five inches long, but narrow in proportion to their length, whitish, flabby at their base, velvety without, smooth within, and rounded at their extremities, inerated at the base of the tube of the filaments, which is naked, entire in its whole length, and terminated by a prodigious number of red filaments a little shorter than the coroll; anthers kidney-shaped, small and loosely attached to the filaments; filiform, thick, longer than the filaments, with five small teeth; fruit unknown. Described by Cavanilles from a specimin in the Herbarium of Thouin. It grows about Rio-Janeiro.
5. B. Ceiba. "Flowers polyanthrous; leaves in fieves." Linn. Trunk closely armed with short, strong spines, so large as to be hallowed out into canoes of twenty-five tons burden; calyx small, campanulate, with five small teeth; coroll monopetalous; tube straight, twice as long as the calyx; border divided into five long, concave oblique segments; filaments numerous, proceeding from five distinct bodies, which are united at the base and form a conic tube adhering to the base of the coroll; anthers oblong, large, germ somewhat ovate, with five angles; capsule oblong, small at the base; seeds nearly round, covered with down, which is used by the lower ranks to stuff pillows and chairs. A native of South-America, near Carthagena. Cultivated at Hampton Court in 1622.
6. B. bijortifolium. "Flowers polyanthrous; leaves in fieves." Linn. "Stamens in five bodies." Cavan. A tree fifty feet high, five feet diameter at its base; wood soft, light, and brittle; bark thick, cinnereous, spiny when young; leaves digitate; calyx four-cleft; flowers numerous, large, odorous; coroll of five petals, downy without, attached by its base to the bottom of the tube of the filaments; filaments very numerous, kidney-shaped, shorter than the coroll, loosely attached; fruit elongated.
7. B. globosum. "Leaves in fieves or fieves, obovate, emarginate; fruint globular." Willd. (Aub. Guat. Tab. 281.) A tree thirty feet high; trunk a foot and a half in diameter; leaves palmate, green, smooth, oval, obtuse, slightly crenulated at the summit, the middle one the largest, on long petioles, with two long, pointed, caducous filipules at their base; flowers unknown; fruit in axillary and terminating racemes. A native of Cayenne.
8. B. golospermum. "Leaves five-lobed, acuminate, tormentose beneath." Linn. A large tree with green, nearly smooth bark; leaves alternate on long, slender, pubescent petioles; flowers large, in simple panicles on downy peduncles; calyx of five unequal leaves; petals five, as long again as the calyx, expanding, yellow; filaments numerous, slightly united at their base; anthers oblong, curved; capsule oval-obtuse; seeds kidney-shaped. A native of the coast of Coromandel.

The species known to Linnæus were at first placed by him with the common cotton and its congeners, under the old Greek name Xylon; but afterwards separated on account of the simple calyx. Those with the double calyx he then called golospermum; those with the simple one obxylon. The species of the genus bom, as it now stands, differ so much from each other in most of the parts of fructification, as to almost justify the division of them into distinct genera. The calyx, the coroll, the number and fuppor of the flowers, the form and inferration of the anthers, all vary; nothing is constant but the simple calyx; the five-celled, five-valved capsule, and the woody seeds. We have altered the natural and essential generic characters, and so formed them as not to exclude any of the species.

Propagation and Culture. Silk cotton is propagated by seeds sown in a hot-bed in the spring. In about two months it should be transplanted into a small pot filled with fresh loamy earth, and plunged into a moderate hot-bed of tanners' bark. At first it should be shaded from the sun; but afterwards, when the weather is warm, should be allowed fresh air, and frequent supplies of water in small quantities, with a uniform degree of heat. In autumn it must be removed into the bark-love and sparingly supplied with moisture. It makes a pleasing fancy in a large flower, but is not likely to produce flowers in England. See Miller, Gardner's Dictionary.

BOMBAJ, in Geography, a small island in the Indian Sea, near the western coast of Hindoostan, about 7 miles in length and very narrow, containing a very strong and capacious fortresses, a large city, a dock-yard, and marine arsest. It is separated on the N.E. by a narrow strait from Salsette, another island, and these two, together with the neighboring shores of the continent, form a large found, in which are several other islands, particularly Caramboll and Elephanta;
Elephant; the latter (which see) being famous for its subterraneous temple, and both of them acquisitions from the Malrattas. It was first taken possession of by the Portuguese, soon after their arrival in India, and called by them Luon Baboo, or Good Bay, from the excellence of its harbour, which is so spacious as to accommodate, as it is affirmed, a thousand ships at anchor, and well sheltered from all winds. The Portugueseced it to the English in 1662, as part of the dower of the Infanta, queen of Charles II. After the king's marriage, a fleet under the command of Lord Malborough was sent to take possession of it; and Mr Abraham Shipman was appointed governor. But upon the death of señor in September 1663, the city, acted by the Papal clergy, who objected to the cession of the island to heretics, refused to surrender it. At length, however, in 1664, he was terrified into compliance, and a treaty was established, by which Mr. Cook, upon the death of Shipman, was invested with the possession of the island, in quality of governor. By this treaty the inhabitants were to be continued in the free exercise of their religion, and in the undisturbed possession of their estates under the crown of England. Although the trade of Bombay was at this time very prosperous, it was soon found, that the royal revenues were not sufficient for defraying the charge of the establishment, and that the trade itself was subject to very considerable obstructions; so that the king found it expedient to make a full grant in fee-tail of the port and territory to our East India Company, which was done by charter, dated 2d March 1668, and thus they have continued to hold it to the present time.

The city of Bombay, the principal port and settlement of the English in this part of India, is situated in the northern part of the island, N. lat. 18° 58', E. long. 73° 38'. It is about a mile in length, but narrow; and defended both towards the sea and land with various fortifications, which have been constructed at a great expense, and which have rendered it the most considerable fortress in India. On the island also there are small forts sufficient for protecting it from any irruption of the Indians; and in the harbour there are batens bewm out in the rock, for the purpose of carrying ships. The houses of Bombay are in general neither splendid nor commodious; but there are several handsome buildings, among which are the governor's palace, and a large, elegant church near it; the houses are not flat-tiled, as they are in other parts of the East; but they are covered with tiles in the European fashion. The English have glass windows. The other inhabitants of the island have their windows of small pieces of transparent shells framed in wood, which render the apartments very dark. The soil of the island is fertile, and incapable of any great improvement; its chief produce consists of coconuts and rice, besides mangos and some Indian fruits. It draws a considerable supply of provisions from the continent, and from the fertile island of Salfette. Large quantities of salt are manufactured on the shore, from the sea-water that flows into pits adapted to this purpose. The sea-breezes and frequent rains cool the atmosphere, and render the climate of this island temperate; and though the air is not so pure as at Madras, yet it is much more wholesome than at Bengal; the coast of Malabar being pretty healthy, though less so than the coast of Coromandel. The island of Bombay has been rendered much more healthy than it was formerly, by a wall, which has been built to prevent the encroachment of the sea, where it formed a salt-marsh, by draining the marlakes in its environs, and by an order that none of the natives should manure their cocoa-nut trees with putrid fish. Nevertheless, many Europeans, especially on their first arrival, are seized with fevers, fluxes, and other disorders, which prove fatal; and others shorten their days by not adhering to a mode of life suitable to the climate. The natives, however, and others, who abstain from excess of animal food and strong liquors, enjoy a good view of health, and live to a considerable age. The want of fresh water is an inconvenience to which the inhabitants are subject; the best being that which they preserve in cisterns after rain; whereas that which is supplied by their wells has a brackish taste.

This island is become very populous, in consequence of the settlement which is granted by the English to persons of every religious profession. The number of inhabitants is estimated by Nicholls at 14,000, and of these the Europeans form the most considerable clafs. The other inhabitants are Portuguese, or Indian Catholics; Hindoos, the original possessors of the country; Persians from Kerman; Mahometans of different sects; and some Oriental Christians. The English have a handsome church at Bombay, but they are disposed to conduct it with decency and order, and to obey the laws of the country. The Catholic churches are decent buildings, and are within proportionately ornamented. The Jews have once a college and a synagogue in the middle of this island; but the college was converted into a country-house for the English governor, and the synagogue into a suite of assembly rooms.

Bombay is the seat of the English government for the coast of Malabar; as Madras is for the Coromandel coast, Calcutta for Bengal, and as Bengal was for Sumatra. These four governments, of which that of Bengal has the superiority and control, are obliged, by an act of the British parliament passed in 1773, (13 Geo. III. c. 63.) to afford mutual assistance in cases of extraordinary exigence. The different establishments are under similar administration, and all proceed under subjects of the company are determined by the law of England. The council or regency of Bombay (as well as that of Bengal) consists of a governor and three members of council. The other servants of the company are factors and writers of different ranks, and are sometimes transferred from one department to another. The governor and members of council of the other preponderacies are to be under the control of the government-general of Bengal, with respect to treaties with the native powers of India, levying war, making peace, collecting and applying revenues, levying and employing forces, or other matters of civil and military government; and they are required in all cases to obey the orders of the said government-general, unless the directors of the company shall have sent to these governments any contrary orders not known to the government-general, of which, in that case, they are to give this government immediate advice. The Court of Directors are to appoint to these several governments, and likewise the commander in chief of all the forces, and the three provincial commanders in chief. All governors and counsellors are prohibited from trading, except from the company. 24 Geo. III. feff. 2. c. 25. 33 Geo. III. c. 52. See Board of Control and East India Company.

Bombay Hook, an island of America at the mouth of Delaware river, about 8 miles long and 2 broad, formed by the Delaware on the eastern side, and Duck Creek and Little Duck Creek on the Maryland side; these are united together by a natural canal. The N. W. end of Bombay Hook is about 47 miles from Cape Henlopen and May; from the Hook to Reedy Island is 10 miles.
BOMBELLA, in Entomology, a species of BOMBYX, of a middle size, that inhabits Austria, the wings of which are cinnamon, sprinkled with fucious. Fabr. Mist. This is *Tinea Bombellica* of the Vienna catalogue. (Wien. Schmett. terl.)

BOMBERG, Daniel, in Biography, one of the early printers, was a native of Antwerp, and settled at Venice, where, in 1518, he printed a folio edition of the Hebrew Bible. See Biblia. He also began an edition of the Tal- mud, in 1526, and completed it some years afterwards in eleven volumes folio. Each of the three impressions of this immense work is said to have cost him 100,000 crowns. His whole property was devoted to the impressions of valuable editions of Hebrew Bibles and rabbinical works, for which purpose he employed a great number, as some say, more than 100 of learned Jews. Bomberg was himself a Hebrew scholar. He died about the middle of the 16th century.

BOMBIC Acid. The silk worm has a small reservoir near the anus, from which, when full grown, or especially when in the chrysalis state, a minute quantity of an acid liquor is seen to ooze out. If the entire animal is bruised, it gives a liquor containing the usual solid animal matters, together with a native acid. Alcohol separates the former, and leaves the latter in solution, which, by evaporation, furnishes a very pure pungent yellow fluid, which shows all the marks of an acid by reddening blue vegetables, and uniting with alcalies and some earths. The discoverer, Chaffeur, considers it as peculiar, and hence it has obtained a separate place in the list of animal acids; but from analogy with the experiments on the formic acid, and other circumstances, the separate existence of the bombic acid is very questionable. No other chemist has yet undertaken to confirm or dispute the original statement. Mem. de l'Acad. de Dijon. 1783.

BOMBICHIE, in Geography, a town of Asia in Syria, 44 miles E. N.E. of Aleppo.

BOMBINA, in Entomology, a large species of CURCU- LIO, described by Fabricius, as a native of Cayenne. The colour of this insect is ferruginous brown, and the wing-cases fringed, with black elevated tubercles.

BOMBINUS, in Zoology, a species of RANA, or frog, the belly of which is orange, spotted with sky-blue, and the pupil of the eye triangular. Blumenb. This kind appears to be extremely variable in point of colour and markings. In the tenth edition of the Linnean Syn. Nat. it is described as the *Rana variegata* Koefsel. In his "History of Frogs and Toads," he calls it *Bufo igneus* (bufo vulgo igneus dictus). It is likewise *La femmante*, and *le couleur de feu* of Lacépède, and *Rana ignea*, or fire-frog, of Dr. Shaw.

The permanent varieties, if they may be so expressed, of this particular species, do not seem to be very correctly ascertained. Gmelin, upon the authority of preceding writers, constitutes the following varieties: 8 has the belly black, with clear white spots and speckles; 9 is of a fucious colour; and 10 is distinguished by its loud honoraous noise. This is the smallest of the European kinds of either the frog or toad. The general habit resembles that of a toad, but it is said to leap and swim with as much or even greater facility than the common frog. Dr. Shaw observes, that he places it among the frogs instead of toads, on account of its depositing its eggs in clustered heaps; not in strings like the latter.

animals. In Germany, Italy, and other European countries, which this creature inhabits, it is known to delight in marshy places. The found of the male, which alone is vocal, is clear and sharp, and is thought by some to resemble, in a very peculiar manner, that of a man giggling with laughter. This, indeed, is not the universal opinion; some authors compare it to the tone of a bell, or the note of a cuckow, for which reason it has obtained the name of bombycina.

This animal, according to Dr. Shaw, may be considered rather as an aquatic than terrestrial species; being rarely found on land, but chiefly inhabiting turbid stagnant waters, in which, in the month of June, it deposits its spawn, the ova being much larger in proportion than in most others of the genus. The tadpoles are hatched towards the end of June, and are of a pale yellowish brown colour; and, when young, are often observed to hang from the surface of leaves, &c. by a glutinous thread proceeding from the small tube or sucker beneath the lower lip. They arrive at their full size towards the close of September, and at that period are remarkable for the fleshy muscular appearance of the tail, which is stronger in proportion than in most other tadpoles. About the beginning of October they assume their complete or ultimate form; and when the tail has so far decreased as to be little more than a quarter of an inch in length, that remaining portion becomes entirely obliterated in the space of about twelve hours. The fire-frog is a lively active animal; leaping and bounding admirably well. When涉足 on land, or unable to elude, it frequents close to the ground; at the same time turning back its head and limbs in a flagellar manner, and if further teased and irritated, evacuates from the hinder part of the thighs, a kind of saponaceous frothy fluid, of no bad fcent, but which, in some circumstances, has been found to excite a flight sensation of serenity in the eyes and nostrils. This species is observed to breed at the age of three years, and may be supposed to live about ten; but this is not entirely ascertained.

It ought not to be forgot, that the triangular form of the pupil of the eye, which Gmelin and others consider as the most striking criterion of this species, can only be observed in a full light, for when examined in the shade its shape is circular.

BOMBESKIE, in Zoology, the Scirius Asiaticus in Le Brun's It. p. 134, t. 254.

BOMBUS, in Medicine. See Flatulency. Bombus, in Mafic, an artificial motion with the hands, imitating, in cadence and harmony, the buzzing of bees. The word is originally Greek, and signifies the buzz or noise of bees, gnats, and the like. In this sense, Bombus made one of the species of applause used by the ancient auditors.

BOMBICILLUS BOHMINICA, in Ornithology, the name under which Bridfon defines the Bohemian chatterer, An- pelis Garrulus. The same author likewise calls an American variety of this bird Bombicilla Carolinensis.

BOMBICINUM, in Ancient Writers, properly denoted a species of filk, brought from Assyria and the island of Cos. In which sense it fiood divided from Scirsum, another fort of folk brought from the Indies.

BOMBICINUM volatilum. See Velamentum.

BOMBILIUS, in Entomology, a genus of Disherafus insects, distinguished by the following character: beak or beak very long, fetaeaces, ftraight, and confluling of two unequal valves, within which three fetaeaces bristles are contained; feelers two, short and hairy; antennae subulate, and connected at the base. Linne. Gmel. &c.

The antennae of the insects in this genus are short, and contain three articulations, the first of which is long, the second short, and the third or half conical, and terminating in
in a kind of appendage, almost forming a fourth joint, as is to be observed with the assistance of glascies. Those who have carefully examined the structure of the trunk with the microscope affirm, that the number of valves or brizilles concealed within the external bivalve sheath are four instead of three, as Gmelin describes. The antenna are infected at the base of the trunk.

Insects of this genus have the head comparatively of a small size, of a form somewhat rounded, and almost wholly occupied by the eyes. The thorax large, the abdomen bulky, and rounded at the extremity as in the bee. Both the thorax and abdomen are hairy, or covered with down. The wings longer than the body, and extended horizontally. Legs long and slender.

The size and rotundity of the body afford an excellent natural character, by which this tribe of insects may be distinguished from those of the genera empsis and ailinus, with which some naturalists have confounded them. The Fabrician species of volucelles, cyathaea, and anthrax, have been referred to the bombylius genus with very little propriety.

The true bombylius is a lively tribe of insects, that subsist entirely on the nectarous juice they extract from flowers, with the assistance of their long proboscis or trunk. They fly with much rapidity; making all the time a soft humming noise similar to that of the bee. In England the largest species (major) has acquired the name of the humble bee fly. The insects of this tribe are found in the winged state in the summer, but their metamorphosis is utterly unknown.

Only a small number of species in this genus are at present known, namely major, medius, minor, minimum, atus, fusus, griseus, viriceps, and albifrons: these are natives of Europe. The extra-European kinds are equalis, capucins, cupreae, maculatus, pygmaeus, and versicolor.

BOMBYX, a genus of LEPIDOPTEROUS insects, or rather one of the subdivisions of the PHALANEA, an extensive genus, in which all the insects of the moth tribe are comprised by Linnaeus. Fabricius, in his "Entomologia Systematica," admits the bombyx as a genus, applying the term phalena, which Linnaeus gave indiscriminately to all the species of the moth tribe, as a generic name to that particular description of moths which have the palpi cylindrical, the tongue advanced and membranaceous, and the antenna filiform.

The true definition of the bombyx, whether considered as a subdivision of the phalena, or as constituting a genus of themselves, is not sufficiently explicit. A great number of species may be readily referred to their proper station in the genus, by observing with attention the characters laid down by Linnaeus; but there are others which cannot be so accurately distinguished from the noctua as we could wish, by the assistance of those characters. If, for instance, we advert to the earlier editions of the Linnean System nature, we shall find even in the small number of species which that naturalist describes, that the greatest confusion prevails in this respect. Had Linnaeus been himself correct in his ideas of the natural character of the bombyx, we are almost persuaded he would not have confounded phalena bucephala as a noctua, any more than dominula, fuliginosa, jacobaeae, and some others, which he includes as such in his arrangement of the lepidoptera.

Linnaeus thought at first the pectinated antenna of the lepidoptera a sufficient criterion of the bombyx, provided the wings were incertant and depressed, while the insect remained in a resting position, because the geometria, though often furnished with pectinated antennae, have the wings expanded horizontally when at rest. But later observations of other naturalists have determined this character of the bombyx to be insufficient to distinguish it.

In the System nature, Linnaeus divides the bombyxes into fections in the following order; the eugenes or those without a manifest spiral tongue, and the spirilinques, having an involuted spiral tongue. These two principal fections are subdivided again; the eugenes, into those with the back smooth or not creased,—with expanded wings,—with reversed wings,—with deflected wings,—with erect crests, or tufts on the back; and the spirilinques, those smooth, with expanded wings,—with deflected wings,—and with the back creased.

This mode of arrangement is entirely superseded by the Entomologia Systematica of Fabricius. The latter writer takes his characters, as usual, chiefly from the tongue and palpi. His bombyx is thus generally described; feeders two, comparred, reflected; tongue short, and membranaceous; antenna filiform. By this means the Linnean bombyxes are excluded, for the reception of which he establishes two other genera, those of Coquus and Hepialus, both of which most strictly appertain to the Linnean bombyxes. The bombyx coquis gave Fabricius the idea of forming a distinct genus of the species analogous to this insect. The characters, he lays down for the coquis are these; the palpi or feeders two, comparred, cylindrical; with no tongue; and the antenna short and filiform. His hepialus has two hairy feelers, between which is the rudiment of a bifid tongue; and the antenna are moniliform.

Gmelin, in the last edition of the Syll. nat. endeavours to reconcile the Fabrician genera as subdivisions to the principal Linnean genus phalena. His bombyxes consist of the attack, which have the wings expanded, and the bombyxes (strictly so) which have not the wings expanded, and these latter are again arranged in subdivisions in the following order; first, those with reversed wings, as in quercifolius; second, those with deflected wings, as in eupehena and heca; third, those with incumbent wings, as in antiques; and fourth, those with convoluted wings, as in bella. The four families, into which Olivier separates the bombyxes, scarcely differ from the preceding; they consist of those with expanded wings, with wings reversed, with wings bent down (deflected), and with wings recovered (incumbent).

The bombyxes are to be considered as a true natural family of the moth tribe, which for the most part may be distinguished by the casual observer, who will attend to the structure of the antenna, the form of the body, the position of the wings, and some few other particulars to be mentioned hereafter. The antenna, which are filiform, and either pectinated or ciliated, differ greatly in the two sexes of the same species; the male being generally distinguished by having the antenna much broader, or larger, than in the other sex. The thorax of the bombyx is rather more bulky, and the body thicker than in the noctua, especially in the females. Thus far coincident with the Linnean character; but if we confine our attention to the feelers and structure of the tongue, as Fabricius observes, we shall be also necessary to determine many of the bombyxes, which approach close to the noctua as not to be accurately distinguished by any other means. For this reason Fabricius is commendable in having endeavoured to define the precise limits between the bombyxes and other analogous tribes: his character is more definite than that which Linnaeus had previously assigned to this family. The discrimination of Fabricius is obvious in separating the two tribes or genera of coquus and hepialus from the bombyxes, under which head Linnaeus comprehends them; for these insects certainly form distinct natural families, both in their general appearance, their metamorphoses, their habits of life, and other peculiarities, from that
which ought to be considered as the natural family of bombyces.

The insects of the bombyx tribe never fly except in the evening. During the day time they encase themselves under the leaves, or beneath the branches, in the clefts of trees, where they may remain secure till about sun-set, at which time they appear to be on the alert, at first crawling about the branches, then fluttering their wings, and becoming brighter in all their motions as the evening comes on. The larger fort of moths, which we see first fluttering from the woods or hedges after some of the geometra, are the _casti_, the Fabrician healip, which fly twistly as their trivial name implies, but low or near the surface of the ground; these at twilight are succeeded by the bombyces and nocturne, whose flight is more elevated. They continue to sport about till it becomes quite dark. The males of the bombyces are commonly first upon the wing in search of the females, which latter are in some few species entirely destitute of wings, or at least have only the rudiments of them close to the thorax; in which case the female waits upon the trees or herbage for the arrival of the male; the female of bombyx antiqua, the vapourer moth, is a striking proof of this, for it has so little the appearance of a moth that any one, except an entomologist, would mistake it for an apetrous or wingless insect. These females which have wings are commonly larger even than the males.

The bombyces are produced from a larva, or as it is more usually termed by common observers, a caterpillar. This is of a long cylindrical form, having in some species a smooth skin, or in others more or less tuberculated; sometimes the skin is covered with a fine silky down, or with hairs; and some of the larger kinds are armed with spines and bristles. All the larvae of the bombyces subsist on vegetables. Their jaws are strong, and of a horny texture, and below them is a small opening, through which the creature draws the silky thread of so much utility in its general economy. Most of these larvae have sixteen feet, some have only fourteen feet, and others no more than twelve, six of which are hooked, and situated on the three first annulations near the head, the others towards the lower extremity of the body are short, broad, and very different in structure.

The greater number of species in the bombyx tribe, when in the larva state, lead a solitary life, in which case they separate as soon as they are hatched from the eggs, and crawl about to provide for themselves, the smallest of these even being able to obtain its own subsistence; they can eat as readily, and spin, or throw out the silky thread with as much facility as when grown bigger. The latter is of considerable utility to the larva, for when it wishes to defend from one branch of the tree or bush to another, instead of being obliged to pursue a circuitous course, by crawling or walking, it need only fasten one end of the silken thread to any particular spot and lower itself by its affligence to the branch desired; or when suspended midway between the branches, it can pass aside with a fwing to any other point within a convenient distance. In like manner, when observed by birds or other enemies, it can drop in an instant and elude the enemy, waiting concealed below among the leaves or on the ground till the danger is over, and then remounting to the former spot by the aid of this thread. This is a provision of nature for the security of the larve of the bombyces, in common with that of other lepidopterous insects.

Some species of the bombyces live in societies, as may be observed, for instance, in _bombyx neustria_ of entomologists, (the _lackey-moth_ of English collectors). The larvae of this species, by their united labours, spin a capacious habitation, in which the infant brood is hatched from the eggs, and after undergoing their several transformations finally become moths.

Like other larvae of the moth tribe, those of the bombyces call their skin several times. When full grown, and approaching the pupa state, those of the bombyx kind spin a fort of web, in which we find the most valuable kind of silk produced by these creatures at any time of their lives. The silk spun by the hairy larvae is observed to be of little value, because the creature interweaves it with the hairs it plucks off its skin for this purpose. The common silk worm (_bombyx mori_), whose cocoon consists of the most valuable kind of silk, as is well known, has the skin perfectly smooth, or free from hair. There are certain species of the larger bombyces, the larvae of which have smooth skins, but still beset with annular series of spines or bristles, that produce very strong silk, and are reared with the view of obtaining the cocoons for the manufacture of silk in the East Indies. The breed of these useful insects has long been cultivated in India, although the silk produced from them is very little, if at all, known in Europe. See Silk. The bombyces remain in the pupa state for a certain time, varying according to the species, some only a few days or weeks, others six or twelve months, two years, or even three. The same day that the umbrellas emerge from the pupa state, they are in a condition to perpetuate their race. Almost immediately after coupling the males die; the females live long enough to deposit the eggs in a proper place for their security, and where the infant brood may find subsistence, after which they perish likewise.

The species of the bombyx tribe are numerous. Those already described by naturalists amount to a large number; and there are, in the cabinets of the curious, many more, especially of the extra-European species, that have never been described; even in the collections of this country, those of the latter description are numerous. The following are described by Linnaeus and Fabricius, and enumerated by Gemini: atlas, heucher, aurous, cecropia, paphia, polyphemus, cypria, cytheera, mulitta, promethea, erytina, janus, mangraea, hippodamia, nicitan, semiaris, boreas, luna, epimethea, argus, pavonia, minor, media, major, achelous, angulata, libeira, tau, jo, abas, falmonoe, proteria, pinus, fenestra, pendulo, tyrrhea, peripieu, armada, militari, callita, populifolia, quercifolia, illicifolia, promulsa, ccastrata, capensis, aluco, australiae, quadricinta, rubia, pruni, amphiochus, potatoria, ocularia, hibici, cynria, cerbi, pini, trifoliis, aegris, filgra, lutea, dumetis, catax, lanetris, vinula, fagi, vericolor, mori, populi, eufira, neustria, tricolor, calidrienae, graphica, traxaconae, cinerea, mali, avellanace, procotiona, pittocampa, rures, atis, rufa, lagopus, imperialis, craficos, hypophla, cyane, bucephala, helops, oleaginous, caja, pudica, calia, maculfo, virgo, menete, delforata, tarquinius, tarquiniius, hebe, villica, plantagine, vittata, monacha, flavia, lutea, diarif, amalis, chrysorryzea, auriulius, bicolor, falcis, calinia, controlinea menda, advena, rutila, lentifera, crataegi, eridanus, tibialis nitida, plumigera, obsolenta, coronas felsiva, dryas, corni, flavomaculata, nuda, funcula, curtula, rechina anachoreta, ananlomana, teludo, affela, bufo, cippus, pudibundus, popula, falcinella, falcinella, tremula, cerulaeolephogaster, argentina, deora, rufa, dicta, elegans tritephus, zizac, dromcharius, tecreba, coiffus, palpita trepida, quercia, giona, anreae, moron, rubia, alpina, purpurea, serraria, marina, nebulosa, frigida, frigida, alnica, helia, hindarii, lubricetas, longa, laeta, continuitaa, comprefia, milhauser, spteca, lucus, frigula, begna, vaugir, ruflula, ruflina, grammica, anitra, matronius, partenies, leporina, celda, dione, capacina, camelina, os, acsculii, antiqua gonotigma, paradox, rona, pyletis.
pylotis, granialis, popularis, fulminea, gloriosa, crinial, rota, luforia, cribrum, libatrix, lectrix, credula, dominula, hera, faugnholenta, ricini, coratulas, colon, populetis, secola, comperfa, fulgianos, ornatrix, priverna, frangie, vieta, viola, mufella, bombellia, pontellia, annulata, grafa, jacobem, rubicollis, pulchella, bella, hiftrio, and umb. To which are to be added bombyx argula Donov. Ind. lfs.; hepialus mappa Donov. Brit. lfs.; eosa lathyrilicus, argenticus, lituratus, and nebuliferus, Donov. Inf. New Holland.

In adhering to the Fabrician system, in preference to that of Linnaeus, we are to exclude from the foregoing list of bombyxes the following species: lagopus, rotilata, fagata, gemina, deflorata, and fagata, all of which are to be referred to the Fabrician genus hyleca; humuli, jodatta, lupinina, hecita, obliqua, cam, crux testudo, alleta, burfo, and mappa, species of the hepalus genus of Fabricius: and coiinis, ungulifer, teretia, aecufu, scalaris, pyrina, lathyrilicus, argentus, lituratus, and nebuliferus, which chiefly belong to the Fabrician genus eosa.

Bombyx is also a name given to the Silk-worm.

Bombyx, in the Ancient Mosaic, a kind of instrument, which, in Aristotle's time, was made of a rose, calamus, and, by reason of its length, was difficult to play on.

The word seems also to have been used for a key, or contrivance for shutting and opening the holes of wind instruments.

Bombyx, in the Ancient Naturalists, signifies indiscriminately either silk or cotton.

Bomene, in Geography, a port town of Zealand, one of the provinces of Holland, on the north shore of Schouwvin island, one league east of Brouwerhaven.

Boming, an island of Afia, in the mouth of the Ganges. N. lat. 22° 45'. E. long. 91° 25'.

Bomo, in Ancient Geography, a station near Axbridge, according to Antonine's Itinerary; but placed by Camden and Gale at Boverton, in Glamorganshire.

Bomel, in Geography, a town of Holland, in the island of Over-Flahe, 7 miles W. of Willemslaat.

Bommel, a strong town of the duchy of Gueldres, seated on the Waal, in the island of Bommel-West, first surrounded with a wall by Otto III. count of Gueldres, in 1229; 60 miles N. E. of Antwerp, and 7 N. of Bois-le-Duc. Bommel was taken by the republican troops of France, October 4, 1704.

Bommel-West, a kind of island, in the province of Gueldres, about five leagues in length from Louwvein N.W. to Fort St. Andrew S. E., and two in its greatest breadth, formed by the rivers Maas and Waal. It is defended by three forts, viz. St. Andrew, Voorn, and Crececar. The first has five bastions, and was built in 1599 by the admiral of Aragon, and the cardinal Andrew of Austria, lieutenant-general of the Spanish forces; the second is situated at a small island, called Voorn, at the exit end of Bommel-West, and was fortified by the prince of Orange, and on that account is sometimes called Fort Naasen, and the third is at the south side of the island towards Bois-le-Duc. These three forts were continued to surrender to prince Maurice in the year 1660. In 1672, the French took the island under marshal Turenne, who, after destroying the fortifications, abandoned it in the following year. At the commencement of the religious disputes, count Charles de Mansfeld, passing this island with some Spanish troops, was encompassed by several Dutch ships under the command of count Hohenlo, who ordered the dykes to be opened, and thus totally inundated the island, so that the Spaniards were obliged to retire to the citadel, and would have miserably perished, if a sudden frost had not constrained the count to abandon the siege, and to allow them liberty to retire. In commemoration of this deliverance a chapel was built at Brussles, in honour of the immaculate conception of the Virgin, next the Dominican church, which being destroyed in 1695, was afterwards re-built with greater magnificence. In 1794, the republican troops of France, having compelled the Dutch to abandon Bommel, overtook them in their retreat, and compelled a great part of them to surrender. They afterwards availed themselves of the frozen state of the Waal, and were making progress towards Corum and Calemburg; but they were attacked by the British troops in conjunction with the Hessians, and driven across the river, with the loss of a considerable number of men and four pieces of artillery. But this temporary successes was of no permanent avail for reining the progress of the French army.

This island belonged to the province of Guelderland, except the town of Louwvein, which, with a very small district, at the western end of the island, belonged to Holland.

Bomo, in Ancient Geography, a name given to the island of Eubea, from the cattle with which it was fed; the ancient Arabians word banea, or bokhoa, signifying, according to Hefychius, cattle, or herds of cattle. This is, probably, the most ancient appellation; the island having been first peopled, as Strabo informs us, by the inhabitants of Arabia and Phoenicia.

BOMOA, in Geography, a town of North America, in New Naves, 10 miles S. of Cinaboa.

Bomonica, in Antiquity, an appellation given at Sparta to the children, who, in the sacrifices of Diana, broke the greater number of trixes with rods, which they sometimes continued to do the whole day, and even, as Plutarch relates, to death itself.

The word is formed from the banea, altar, and vom. victorius; importing as much as victor ad aras, or conqueror at the altar.

Bompart, Marcellus, in Biography, practised medicine at Clermont Ferrand the early part of the seventeenth century, and was public counsellor to the king. No memorials of his life are known; but his work "Milier Homo," in which he gives a succinct account of all the principal diseases affecting the human frame, was much esteemed. It was dedicated to Pietro, Riolan, and Guy Patin; and to be patronized by them was highly creditable: also "Neuve Chaffe Pelle," Paris, 1630, 8vo.; and "Lettres d'Hippocrates traduites et commentees," 1632, 8vo. Haller. Bib. Med. Elyo. Dict. Illis.

Bopel, in Geography, a town of Hindoollan, in the Pamib, 15 miles N.W. of Decib, and 10 miles S.E. of Radone, a town on the Bexy. N. lat. 31° 55'. E. long. 75° 57'.

Bomrauze, a town of Hindoollan, in the Carnatic, 30 miles N.W. of Madras, and 96 miles W. of N. Arcot. N. lat. 13° 24'. E. long. 75° 9'.

BOMY, a town of France, in the department of the frats of Calais, and chief place of a canton in the district of St. Omer, 8 miles S.W. of Aire.

Bon, John, L, in Biography, a native of Anterverle, in Champagne, and eminent in his time for his knowledge in medicine, physician to the king of France, and to the cardinal de Guise, published in 1571, "Therapie Puerorum," 1610. Paris, "induced to it," he says, "by the ignorance of the furgens, midwives, and toniers, who attended women in child-birth. By their blunders and inexpertness in their art, many women lost their lives, and many children..."
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children were destroyed." His work is very full on the subject, giving rules for the management of women before, during, and after parturition. He has left formulae for a variety of ointments, with which he directs the pudenda of the women to be anointed, and which he thought conduced much to the acceleration of the birth of the child. When these failed, lapis elisites was to be tied to one of the thighs of the woman, and polypody of the oak to the foot. But these, he gravely admonishes, are to be taken away as soon as the child is born, lest they should draw away the womb. Such mighty power was attributed to these trileis. It is probable, however, that the author only meant by these precautions to gain time and to prevent the too hasty interference of the midwives, surgeons, &c.; and as there was nothing in the remedies that could injure the woman, who would frequently be delivered by the natural pains, during their use, he might not be forry to find the attendants attributing the safety of the woman and child, and the happy termination of the labour, to them. Whatever his real opinion might be, it is certain that, among the people, these kinds of remedies acquired great credit, and the use of them was continued for near a century after his time. Among other objects that engrossed the attention of this writer, we find him giving formulae for ointments for smoothing the wrinkles of the abdomen, and for preventing the breasts of women who had borne children from becoming large and pendulous. "Ne venter rugis indecoris," he says, "et flatares, et viris fuis ingratas, parum anabiles, et abominandas reddat; ne manasse in majorem molest extantur." His book appears to have been in great request, as it passed through many editions, and is inserted in the "Collection of Treatises on disorders attending pregnancy and child-birth," by Cappar Wolius, published in 1586, re-edited by H. Spachius, fol. 1597, under the title of "Gynecia, lib. de mulierum morbis," from which the above quotations have been taken. Haller Bib. Med.

Bon, John Philip, probably of the same family with John de Bon, published at Padua, "De Concordantia Philosopher et Medicina," 4to. 1573; he was also author of several poetical works, which were much esteemed in their time. Eloy. Dict. Hill.

Bon, in Botany. (Alpinus.) See Coffea.

Bon, Cape, in Geography, called by the Moors Ras Almar, and the prominent of Mercury, or Hermes, of the ancients, is a cape of Africa, in the kingdom of Tunis, in the Mediterranean sea, distant 11 leagues E.S.E. from that of Zibeeb, and forming the eastern point, as Zibeb does the western, of the gulf of Tunis. It is so high, that from its summit the mountains of Sicily, distant more than 20 leagues, may be discovered in fair weather. See Aegyptus, and Damascus. Cape Bon is situated about N.N.E. from Tunis. N.lat. 35° 56'. E.long. 11° 15'.

Bon, in Modern History, the name of a feast celebrated annually by the Japanese in honour of the dead. On this occasion they use a great number of lights, and run with cagernets to the tombs of their departed relations with such choice meats as they conceive to be suited to the taste and nourishment of the dead.

Bon, Fr.; Buono, Ital.; as tens bon, and tempo buono, used, in Maffe, to express the accepted parts of a bar. It is the first note of binary measure of two minimi or two crotchetts in a bar; the first note of the ternary measure of 3 or 4, and the first and third notes of common time. It is opposed to tens mauvais and tempo cattive, the unaccepted part of a bar. The French at present, distinguishing these portions of a bar by the terms tens fort and tens faibles, strong and weak, and almost loud and soft parts of a bar. It is on the accented part of a bar that a discord regularly prepared is struck, and resolved on the unaccented part.

Eona, John, Cardinal, in Biography, was born at Mondovi, in Piedmont, in 1609, and entered at an early age into a reformed congregation of Cistercians. After having studied philosophy and theology at Rome, he returned to his own country, and became, in 1651, general of the congregation; and he was, at length, viz. in 1665, nominated a cardinal by pope Clement IX. Upon his death at this pontiff, he was thought of as a fit person to succeed him; but another was elected. The cardinal spent the remainder of his days in studious and pious exercises, and died at Rome in 1674. He was the author of several works, chiefly of a devotional kind; such as, "De Divina Phialis, de qua varis ritibus omnium ecclesiasticum in psalmodia divinis officiis," 4to. containing an historical account of the practice of psalmody in the Christian church; and "Rerum Liturgicarum libri duo," 4to. giving a similar account of the celebration of the mass. Both these works have been often reprinted; and of the latter an edition much enlarged was published at Turin, in 1747, by father Salas, in 4 vols. fol. Gen. Dict.

Bon, John de, professor of medicine at Padua, published, 1576, "Historiae aliquot curantium, mercurii utilis, coronae, morbosi corrodente, perfectarn," Verona, 4to. This medicine was much commended by baron Von Swieten, and forms probably the basis of most of our nostrums celebrated for their power of removing pimples, blisters, &c. from the face and other parts of the skin. It was intended by the author to supersede salivation in the cure of hæmasa and, in some cases it has been used with complete success; but it too often disappoints the expectation of the prescriber, to be entirely depended on. "Tractus de Scorbuto," 4to. 1751. The author shows that this disease, though most frequent in cold marshy places, is not infrequent in warm countries. "Dall uo e dell abuol della cattiva," Venice. 1761. Coffe, which is hot and drying, should only be used, he says, by persons of cold phlegmatic constitutions. In the quantity it is usually taken in this country, it will scarce be hurtful to any habit or constitution. "Observationes medicæ ad præsum in nofocomico, anno," 1765, 8vo. Patav. 1766. Haller Bib. Anat.

Bona, in Botany (Didaco). See Vicia Narbonensis, and Paba.

Bona Nax. See Milan.

Bona, in Geography, a sea-port town of Africa, in the eastern or Levantine government of the kingdom of Algiers, and province of Coquilantia; known to the Moors by the name of Blaid el Aneb, or the town of jubes, from the plenty of fruit which is gathered in the neighbourhood. Bona, says Dr. Shaw (Travels, p. 46.), is, without doubt, a corruption of Hippo, or Hippona, though the ruins of the ancient Hippoegnas are situated somewhat more than a mile to the south, and furnished materials for the erection of Bona, which is the Aphrodium of Ptolomy, and placed by him 15° to the north of Hippo. Bona was formerly rich and populous, but is now poorly built and thinly inhabited. Bona, besides its capacious harbour to the east, had formerly a convenient little port under its walls towards the south; but by the constant discharge of ballast into the one, and a neglect of cleansing the other, both are rendered unsafe and incommmodious. However, a great quantity of corn, wool, hides, and wax, are every year permitted to be shipped off from this place; and, by proper management, it might be rendered the most flourishing city in Barbary; and, by introducing a supply of fresh water, it would also become one of the most convenient and delightful. The
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adjacent country produces corn and fruit, and great numbers of small and large cattle, but is much exposed to the incursions of the plundering Arabs. The French have a factory at Bona, where they purchase corn, oil, leather, wax, and wool, and constantly keep a resident agent, who has charge of the correspondence between Bona, Algiers, La Calle, and Marsilles. N. lat. 37°. W. long. 7° 50'.

Bona Fortuna, Cafe, is a cape of Rutilin, in the White Sea. N. lat. 63° 35'. E. long. 58° 25'.

Bona Schola. See BASSEWS.

Bona Dea, the good goddess, in Mythology, a mysterious kind of divinity, whose name was unknown to men, and whose sacred rites, performed by the Vestal virgins for the safety of the Roman people, were attended only by women. Some have supposed that this name belonged to Cybele, or the earth, as the source of all good things. Phalaris confounds her with Flora. Varro pretends she was the wife of Faunus; and that he maintained her character for chastity to such a degree, as never to allow herself to look upon any man besides her husband. Laetantius, on the contrary, says, that this wife of Faunus, having drank wine in violation of the prevailing custom of the period in which he lived, was whipped to death by her husband with rods of myrtle; and that, he afterwards repenting of the deed, and lamenting the loss of his wife, placed her in the rank of divinities. The feasts of the Bona Dea were annually celebrated, with peculiar solemnity, on the first day of May. The house, in which the rites of the festival were performed, was adorned at a great expense; and as the night was the seafon appropriated to this purpose, the apartments were illuminated with a great number of lights. The veils were conveyed into the house of the foreign pontific, or one of the chief magistrates; and rags was taken to exclude tal males, and all animals of this species; and every thing masculine was so scrupulously excluded, that even pictures of that sort were covered during the ceremony. To this purpose, Juvenal (vi. 339.) says:—

"ubi velarí pictura jabetur
Quaeque alterius fænis imitata figuram efl."

It was supposed, that if a man by chance, and without any deliberate intention, became the witness of these mysteries, he would be struck blind. Clodius, however, was guilty of polluting these mysteries. Whilom Pompeia, the wife of Cæsar, with whom he had an intrigue, was, according to annual custom, celebrating in her house the awful and mystic sacrifices of the "Bona Dea," Clodius determined to gain access to his mistress, even in the seclusion of her holy ministry. Accordingly, he dressed himself in a woman's habit, and, with the benefit of his smooth face, and the introduction of one of the female servants who was in the seeret, hoped to pass without discovery. But by some mistake between him and his guide, he lost his way when he came into the house, and unluckily fell in among the other female servants, who, detecting him by his voice, alarmed the whole company by their shrieks, to the great amazement of the matrons, who preternaturally threw the veil over the sacred mysteries, while Clodius found an opportunity of making his escape by the favour of some of the damsels. This folly was preternaturally spread abroad, and raised a general scandal and horror through the whole city. Cæsar put away his wife upon it; and perrons of all ranks were deified of availing themselves of this circumstance to get rid of a citizen, who by this, as well as other specimens of his audacious, seemed born to create much disturbance to the state. It had been the constant belief of the populace, that a man should ever pay into these mysteries, he would be instantly deprived of light; but it was not possible, as Cicero says, to know the truth of it before, till Clodius ventured upon the experiment; though it was now found, as he tells him, that the blindfolds of the eye was converted to that of the mind. The affair was soon brought before the Senate, and by then referred to the college of priests, who declared it to be an abominable impiety: upon which the confus was ordered to provide a law for bring Clodius to a trial for it before the people. Clodius's faction, however, ultimately prevailed: and when the trial came to the issue, 25 condemned, and 31 absolved him. When Caesar, on this occasion was summoned to give evidence, he declared, that he knew nothing at all of the matter, though his mother Aurelia, and sister Julia, who were examined before him, had given a partial relation of the whole fact; and being interrogated, how he came then to part with his wife? he replied, "that all who belonged to him ought to be free from suspicion as well as guilt." Cicero, in his dissertation for Milo against Clodius, often refers to this sacrilege, with a view of rendering his adversary odious to the people. Many Roman writers have exclaimed against the licentiousness and innumerable of these mysteries, called by way of eminence the Roman mysteries, and celebrated on the 5th of December, though those of the goddesses Cybele were celebrated on the 1st of May. Nevertheless, this goddess is called holy in an inscription recorded by Gruter. "Bona Dea Sanctae facrum., &c." Laetantius (ii. 598.) depicts the good goddess as bearing a mural crown, and drawn in a chariot by horses. She is also thus represented on the medals of the emperor Philip. The Greeks also had their good goddess, whom they denominated the gods of women; and the Carthaginians paid divine honours to a goddess under this appellation, whom they believed to be Juno.

Bona Fide, or Bona Fide, is used in speaking of things done with an honest intention, in opposition to those done with a design of fraud and deceit, said to be mala fide. In this sense, we say, a grant, a conveyance, bona fide.

In many cases, in the civil law, the bona fide of an action excuses the want of some of the customary forms.

Costraets bona fide among Civilians, stand contrasted with those seelitaiuris; the former being gained by plain honesty and confidence, which sometimes include several things not expressly mentioned; whereas the latter are restrained to the express terms of the deed. A buyer bona fide, is he who really believed the thing to belong to the seller at the time when he purchased it. A possessor bona fide, is he who is in possession of a thing belonging to another, but which he truly believes his own. To be entitled to the benefits of next ascension, it is requisite the persons have possessed the thing bona fide, or really thought themselves the proprietors.

Prescription cannot arise from acts done mala fide; since what was unjust in its origin, can never be made just by time and continuance. See PRESCRIPTION.

Bona Fidee Afciens, those wherein for farther light, the judge might take cognizance of things not mentioned between the parties. Bona Fide Judgment, that wherein the parties are obliged to pay each other what is due bona fide, i.e. justly and equitably; and the judge has a power of estimating what is thus due to the actor or plaintiff; a power given him by the forum, of the praeator, viz., ex fide bona, vel quantum egressi melius. Bona Gestura. See GOOD ABEARING.

Bona Gratia, a phæbe antiently used in speaking of divorces, which were brought amicably about for some just reason, with the consent of both parties, and without any
crime on the part of either, as in case of old age, difcafe, barrenness, monachism, captivity, or the like.

**Bona Disputati ad colligendum.** See Colligendum.

**Bona Mobilia.** See Mobilia.

**Bona Notabilis, in Law.** Where a perfon dying has goods, or good debts, in another diocefe, but within the fame province, besides his goods in the diocefe where he dies, amounting to the value of five pounds at least, he is said to have *bona notabilis:* in which case, the probate of his will, &c. belongs not to the bishop of the diocefe where he dies, whole jurisdiction cannot extend beyond the bounds of his own diocefe, but to the archbishop of the province.

Though if a perfon happens to die in another diocefe than that wherein he lives, on a journey: what he hath about him above the value of five pounds, &c. shall not be* bona notabilis.*

**Bona Patria, a jury or affize of countrymen, or good neighbours.** See Assize and Jury.

**Bona periurata, perillable goods.** By Stat. 13 Ed. I. cap. 4, the cargo of a ship that hath been cast away shall be kept for a year and a day, and restored to the rightful owner; but if the goods be such as will not endure to long, they are *bona periurata,* which the sheriff is allowed to sell, and to account in money for the value.

Bona vacantia, goods, such as royal fish, shipwrecks, treasure-trove, wafis, and etrayers, in which no one can claim a property. These goods, by the law of nature, and by the imperial law, belonged to the first occupant or finder; but in the modern constitutions of European governments, they are annexed to the supreme power by the positive laws of the state.

**BONACCIOLO, Lewis,** in Biography, a physician of great eminence and authority, practifed medicine at Ferrara, in the early part of the 16th century. His great work "Années millebirs, live de factus formation," was printed in 1503, in fol. "qua, praeter alia, plurima quaque ad coitum, et ad rem veneram faciunt, dictione liberíma deferventur." It was nevertheless dedicated to Lucretia, daughter to pope Alexander VI. But the dedication, Blomenbach observes, is only to be found in the edition, prinicip, which is extremely rare. A copy of this edition was fold by Paterfion, in 1791, with the fplendid Paris library. This writer, Douglas lays, was the first who diflinguifhed the stories from the nymphs, and threw them to the diftineft parts. The "Années was again printed in 1587. It was alfo increased by Cafpar Wolius in his Collection of Treatifes, called "Gynæca, live de mulierum morbis," 1608, re-edited by H. Spachius, fol. 1597; and with Piereus's physicalfical treatifes. Though of little value now, the work was for a long time held in great efteem; the author having given in it a more accurate anatomy of the fatus, and of the partes generationi subfervientes, than any preceding writer. Douglas Bib. Hal. Bib. Anat.

**BONACHI,** in Geography, a town of North America, in New Nanvae, 180 miles S. of Saca grand.

**BONACOPUS, Hercules,** in Biography, of Ferrara, and for some years professor in medicine at Bologna, publifhed, in 1552, "De affectu quem Latini tormenta appellant," 4to.; "De humorum exeruptam figuris ac ferapis, de compositione Theriacæ, de modo preparandi aquam ligni faini, &c." 4to. 1553; the latter medicine was now in the zenith of its reputation for its powers in curing the hæs venereæ; "De curatione pleuritis, ad Hippocrati, Galeni, &c. monumentis dempeigna," 4to. 1553. He died in 1558. Bonacopus had much learning, and contributed by his works to revive among his compatriots a taste for literature, particu-
This woods. The nest of this species is of a curious structure, being composed of leaves and fibres of vegetables, sewed with the greatest ingenuity to the leaf of a banana plant, in such a manner that the leaf itself forms one of the sides to the nest; when completed, it is laid to be exactly in thape of the fourth part of a globe.

Another bird, of a species very analogous to the above, is described by Ray and Sloane under the names of watchy picket, Spanish nightingale, American long-neck, and idurus minor nidium fuipend. This appears to have been confounded with the former kind. Briffon, deeming them both the same, included the synonyms of the two species together, which led later observers into an error. Dr. Latham separates them; and, upon the authority of this able ornithologist, Gmelin gives the watchy picket as a distinct species under the name of oriolus nudipendulus. This specific name is chosen, in allusion to the manner in which the nest is fastened to the extremity of the further twigs of the trees in which it lives. The nest of the banana bird is before described; that of the watchy picket is very different, being of a long cylindrical form, composed of flax, fibres, and the inward hairs of the "old man's beard," which latter bears a strong resemblance to horse-hair. The two opposite methods of constructing, as well as placing the nest, as Dr. Latham judiciously observes, cannot fairly belong to one bird. See Nudipendulus.

Gmelin places the watchy picket, with a note of scepticism, as a synonym to motacilla calidris. This might possibly mistake, without observing that Sloane, Ray, &c. describe more than one bird under that name; the latter is the American nightingale of Edwards, and the long-neck spider of Latham, the bird called the watchy picket by Sloane, Hift. Jarn. 2. p. 299.

BONANNI, Padre Filippo, in Biography, a Jesuit, who published at Rome, in 1722, in 4to. drawings of a curious collection of musical instruments, reprinted in the hands of the performers; entitled "Gabinetto Armonico Tieno d'Illumentoni Sonori indicati e spiegati ed offerto al Santo Re David." The collection is curious, and the instruments are not ill executed; but we are not sure that the drawings are always correct.

BONARATTE, in Geography, a small island of the Indian ocean, south-east of Salyer, ceded by the Macassers to a rajah of Boni, in Celebes, who used it as a place of education for his dancing girls, and appropriated to the same purpose by the kings of Boni. It is chiefly inhabited by Bougonet.

BONARELLI, Guidobaldo, Count, in Biography, an Italian poet, who was born in 1565, in the palace of the duke of Urbino, to whom his father was favourite minisller; and, after previous instruction at home, was sent to study theology at Pont a Mousson, in France, where he made such proficiency, that he was invited, at the age of 19, to take the chair of philosophy at the Sorbonne. He returned, however, into Italy, and was employed by Cesare, duke of Modena, in some important negotiations at the courts of Rome and France; but incurring disgrace by his marriage, he withdrew to Ferrara, and, in 1607, published the pastoral drama by which he acquired celebrity. This drama was acted by the academy of "Intrepid." at this place, of which Bonarelli had been one of the founders. In his way to Rome, for the purpose of affirming the office of major-domo to cardinal Effe, he was taken at night with a disorder, which terminated his life, Jan. 8, 1668. The drama of Bonarelli, entitled "Fiili di Sciro," was much applauded both in Italy and other countries at its first appearance, and was ranked by common opinion next to the Aminto of Tasso, and the Pastor Fido of Gravina. Although this pastoral has many poetical beauties, it strongly indicates the corrupt taste which then prevailed; nevertheless it maintains its place among Italian pastorals. Many editions of it have been printed; and it has been translated into the French and English languages. Gen. Biog.

BONARES, in Geography, a town of Spain, in Aula- lufa; one league from Lucena.

BONARIENSIS, in Ornithology, that species of Locia or grasseck, described by Buffon under the name of noir fonci. The head and back of the neck are blue; body above blackish, beneath yellow; belly and vent sulphur colour; wings and tail blackish, edged with blue.

This bird is about seven inches long, and is observed generally to fly in pairs; they haunt gardens, where they do much mischief, as they feed on seeds. The bill is blackish; legs reddish; claws acute, curved, and grooved; the hind claw largest. This is the marijuana grass beck of Latham.

BONARIENSIS, a species of Tanagua, that inhabits Bonaria. This is eight inches long; the colour black, glossed with violet, and with greenish on the wings and tail. Gmel. &c. Buffon calls this bird tanguvio. The beak is black, the legs blackish, with large claws. The female is of a brown colour, with the head black, and glossed with blue.

BONARIENSIS, a species of Motacilla, of a black colour; throat and sides ferruginous; face, chin, middle of the belly, and exterior tail feathers, white. This bird is of the size of a linnet; bill blackish; hind-claw large. Buffon calls this deminutiva noit et tonti. It is the white-shouldered warcher of Latham.

BONAROTA, in Botany, Michel, and Scopoli. See Pederota.

BONASCOLA, in Geography, a town of Italy, in the state of Guaron, near the sea-coast, 4$ miles S.E. of Brugnetto.

BONASIA, in Entomology, a species of Cicada (membranae, cruciata) found in America. Fabricius describes it as having the thorax bicoloured, produced behind, and edged with white; at the base of the wings is a white spot.

BONASIA, is also the name of a species of Papilio (Heliconia), the wings of which are fuscous, with a common fulvous band; the lower pair spotted at the base with black.

BONASIA, in Ornithology. Under this name Briffon describes several species of the Tetrao genus; as for instance, tetrao Camadenfis he calls bonasfa freti Hudsonis; tetrao Canadens, bonasfa Camadenfs; tetrao lagopus, bonasfa scoticus; and tetrao togatus, bonasfa major Camadenfs.

BONASUS, in Zoology, one of the synonyms of the wild ox. See Bos Taurus.

By some the bonasus is understood to be that particular kind of wild ox which has the horns bent back, and the mane very long. Bonasus of Miny, &c. hos cornibus in fex Bexis, juba longifirma. Linn. Syll. Nat. The bison is thought by Geffier to be the bonasus of Ariolus.

BONAT, in Geography, a town of France, in the department of the Creusit, and chief place of a canton, in the duchy of Guert, 33 leagues N. of Guert.

BONAVENTURA, St., in Biography, a cardinal of Rome, and entitled the "Seraphic doctor," was born at Bagnara, in Tufcani, 1221; and having entered into the order of Minorites, in 1242, studied at Paris under Alexander de Hales, and there taught theology with great applause. He received his doctor's degree in 1255, and in the following year was made general of his order. He declined accepting the archbishopric of York, to which he was
was nominated by pope Clement IV. in 1265; and, after his death, the choice of a successor was referred by the cardinals to Bonaventura, who fixed on Gregory X. by whom he was made cardinal, and whom he attended to the second council of Lyons, in 1274, where he died in the same year. He was canonized by Sixtus IV. in 1482, and declared a doctor of the church by Sixtus V. in 1588. His works have been collected in 8 vols. fol. and were printed at Rome in 1588; and an edition of them in 14 vols. 8vo. has also been published. Among these are his "Life of St. Francis," the founder of his order, and "A Commentary on the Matter of the Sentences," in which he appears to be a complete master of the theology of the 13th century. To him has been ascribed the influence of religious controversies, and through his private character, and literary talents, are commended both by protostats and catholics, he has incurred some reproach for the zeal with which he promoted the worship of the virgin Mary, as the mother of God. "Moriæ. Eneicy. Mofheim, vol. iii.

Bonaventura, Frederick, an eminent scholar and physician of Urbino, in Italy, who flourished in the early part of the 17th century, published, in 1601, "De natura partus octometrici, adversus vulgarem opinionem, libri decem," Trancus. folio; an enormous volume, containing upwards of one thousand pages, on this interesting subject, in which he has introduced the opinions of different writers, and accounts of all the controversies that have been held on the legitimate period of utero-getation in women. The author had published a dissertation on the subject, in the preceding year, which he incorporated in the great work, but with which a modern reader would probably have been fully contented. Haller. Bib. Med.

Bonaventura, Capo, in Geography, is situated on the coast of New Guinea, in lat. 6° 15', and about 65 leagues N.E. from port St. Augultine. The land is low and luxuriant, and produces the cocoa-nut, bread-fruit, plantain, &c.

Bonaventura, the name of an island, north-east of the bay of Chaleur, off the coast of New Brunswick, in the gulf of St. Lawrence, and a little to the south-west of the point which forms the south-east entrance into that river; about a league from Gaspe bay.—Also, an island on the flaboard side of the entrance into Porto-Bello harbour, opposite to the mouth of Guanche river. See Porto-Bello.

Bona Ventura, or Buenaventura, a river, bay, harbour, and fort, on the coast of Papayan, in South America, nearly south from Panama bay. N. lat. 3° 20'. W. long. 75° 18'. Banks and shoals of 4 or 50 tons may go up to a village a league beyond the fort. Bonaventure is the flab port of Call, Papayan, Sta. Fe, &c.

Bonaventura, Cape and Port, are situated on the east coast of Newfoundland, about mid-west of Bonavista cape, and form the north entrance into Smith's found, from whence the coast runs S. by W. into Trinity bay.—Also, a bay on the eastern side of the island of St. Vincent. N. lat. 13° 9'. W. long. 61° 18'.

Bonavista, so called in reference to its beautiful appearance at sea, the most easterly of the Cape de Verde islands, about 20 miles long, and 12 broad, and distant about 70 leagues west of the coast of Africa. Its surface is low towards the sea, but within hilly, particularly towards the north-east extremity, where is a hill, which, from its conical and truncated shape, appears to have been a volcano; and there is another hill, much higher towards the south-east end, with high land to the westward of it. The soil is sandy, barren, and uncultivated; milk, goats, fowl, and turtle, are the principal food of the inhabitants. It affords some salt; and if the culture of it were not neglected, it

would yield cotton and indigo. It is known at a distance by several white banks on its north side, where the shore is bold, and where a rapid river discharges itself into the sea. This island has a good harbour on its west side, where vessels may lie in 15 or 16 fathoms water. At the distance of a league or a league and a half from the south-east point of the island is a reef of rocks; and over this point, says Capt. Cook, there is a pretty high round mountain, rising not far from the shore. This point, by his observations, is in N. lat. 16° 0', and longitude from London, by account, 21° 51' W. The latitude of the north end of the island is 16° 12' N. and of the south end 15° 57' N. but that at the east end was not ascertained. Mr. Wales, in the second voyage, determined the latitudes of these three points as follows: north point 16° 13' N., call point 16° 31' N., and latitude of the south point 15° 58' N. Stavi-rinus says, that this island has two eminences of a middling height, that appear distinctly upon it; and that there are two reefs, one at the north side, and one at the south side, which stretch out to the eastward, and which are both very dangerous. According to the account in lord Macartney's embassy to China, the east-coast was guarded by rocks; but towards the south-east end the shore was much covered with white sand. On that tide there seemed to be neither cultivation nor inhabitants. The latitude of Bonavista, was 16° 6' N. and the longitude 22° 47' W. The variation 12° 30' to the westward of the pole. This island belongs to the Portuguese. Bonavista, Cape, the extreme N. W. point of the island of Cuba in the West Indies, opening into the gulf of Mexico, from whence the land falls off southerly to cape St. Antonio.

Bonavista, Cape and Bay of, lie on the east side of Newfoundland island, the cape lies in N. lat. 48° 54', and W. long. 52° 33', and was discovered by John Cabot and his son Sebastian, in 1497, under a commission for exploring unknown lands, obtained from Henry VII. The bay is formed by this cape and cape Freels, 15 leagues apart.

BONAYE, a town of France in the department of the Lower Loire, and chief place of a canton, in the district of Nantes. The place contains 834, and the canton 9,532 inhabitants; its territory comprehends 135 kilometres and 7 communes.

BONCAT, a town of France, in the department of the Lower Pyrenées, 6 leagues S. of Bayonne.

BONCHAMPs, a town of France, in the department of the Mayenne, 2 miles S. W. of Cron.

BONCONICA, Offenheim, in Ancient Geography, a town of Gaul, placed between Mogontia to the north, and Borbatomagus to the south, seated on the river Rheus, in Germany prima.

Bona Venturo, or Bon-convento, in Geography, a town of Italy, in the territory of Sienna, where the emperor Henry VII. died; 12 miles S. of Sienna.

BONCORE, Thomas, doctor in philo, by, medicine, and law, in Biography, has left a memorial of a defractive pellifere, which raged at Naples, where he was in high credit, as a practitioner in medicine, in the year 1622. "De populi, horribili, ac pelliferi gutturas affllicatione, nobilissimum urbem Neapolim vexante, cothilium," 140, 1622. Neap. An early account of the scervitana anginosia, or malignant for throat, which has of late years made such frequent appearance, and proved so defractive, among children particularly, in this country. Elrey. Bib. Hil.

BOND, John, an English grammarian of the 16th century, was a native of Somersetshire, and after finishing his
his grammatical education at Wincheste school, was entered, in 1569, at the age of 19 years, a student in the university of Oxford, where he was distinguished by his proficiency in academical learning: Having taken his degrees of bachelor and master of arts, the former in 1573, and the latter in 1579, he was promoted by the master and wardens of New College to the mastership of the free-college at Taunton, in Somersetshire, which office he occupied with reputation for several years. At length he quitted the laborious station of school-master, and directed his attention to physic, which he practised more for amusement than profit. He died in 1612, and was buried in the church of the town. He wrote "Commentaries on Homer and on Persius."

**Bond, or Obligation, in Law.** is a deed whereby the obligor, or person bound, obliges himself, his heirs, executors, and administrators, to pay a certain sum of money to another called the obligee, at a day appointed. If this be all, the bond is called a single one, "Simplex obligatio;" but there is generally a condition added, that if the obligor does some particular act, the obligation shall be void, or else shall remain in full force, as payment of rent, performances of covenants in a deed, or repayment of a principal sum of money borrowed of the obligee, with interest, which principal sum is usually one half of the penal sum specified in the bond. In such condition is not performed, the bond becomes forfeited or absolute at law, and charges the obligor while living; and after his death the obligation depends upon his heir, who, on defect of personal effects, is bound to discharge it, provided he has real effects, by defect as a recompense. So that it may be called, though not a direct, yet a collateral, charge upon the lands.

This security is called a "specialty;" the debt being therein particularly specified in writing, and the party's seal, acknowledging the debt or duty, and confirming the contract, rendering it a security of a higher nature than those entered into without the solemnity of a seal. In order to make a good obligation, it has been held that three things are necessary, viz. writing in paper or parchment, sealing, and delivery; but it hath been adjudged not to be necessary, that the obligor should sign or subscribe his name, sealing being deemed sufficient, and subscribing being no essential part of the deed. And though the seal be necessary, yet if the word sealed be wanting, it is remedied by verbal and pleading over, for all necessary circumstances shall be intended; and if it were not sealed, it could not be the deed or obligation of the party. Moreover, though sealing and delivery be essential in an obligation, it is not necessary to mention in the bond, that it was sealed and delivered, because, according to lord Coke, (2 Co. 5 a.) these are things which are done afterwards. The name of the obligor subscribed is sufficient, though there is a blank for his Christian name in the bond; and where the obligor's name is omitted to be inserted in the bond, if he signs and seals it, the court of chancery may make good such an accident.

An obligation is good, though it has no date; or a false or impossible date; the date not being of the substance of the deed; but the day of the delivery is the day of date, though no day be set forth. Every deed is supposed to be delivered and made on the day of its date; and if the plaintiff declare on a date, he cannot afterwards reply, that it was first delivered at another day. A plaintiff may suggest a date in a bond which has none, or one that is impossible, &c, provided that the parties and sum are sufficiently expressed. A person shall not be charged by a bond, though signed and sealed, without delivery, or words, or other act, amounting to a delivery. But it may be delivered by mere words; and an actual delivery without speaking any word, is sufficient. If a bond be altered by interpolation in a material part, it becomes void, and it may be made void by nascitur, &c, or by raising the date, &c, after delivery. If the words at the end of the condition, "that then this obligation to be void," are omitted, the condition will be void, but not the obligation. If the condition of a bond be impossible at the time of making it, or be to do a thing contrary to some rule of law that is merely positive, or be uncertain or indefinite, the condition alone is void, and the bond shall stand final and unconditional; for it is the folly of the obligee to enter into such an obligation, from which he can never be released. If it be to do a thing that is malum in se, the obligation itself is void; for the whole is an unlawful contract, and the obligee shall take no advantage from such a transaction. And if the condition be possible at the time of making it, and afterwards becomes impossible by the act of God, the act of law, or the act of the obligee himself, there the penalty of the obligation is saved; for no prudence or foresight of the obligor could guard against such a contingency. Co. Litt. 256. When a condition is doubtful, it is always taken most favourably for the obligor, and against the obligee; but so that a reasonable construction may be made as nearly as possible according to the intention of the parties. If no time be limited in a bond for payment of the money, it is due presently and payable on demand. 1 Brown. 53; and if a condition be impossible in respect of time, it shall be paid presently. Jones 122. 1 Leon. 121. If the party, who is bound to perform the condition, discharges himself, this is a breach. A bond made with condition not to give evidence against a felon, &c, is void; but the defendant must plead the special matter. 2 Will. 744, &c. Condition of a bond to indemnify a person from any legal prosecution is against law, and void. 1 Lutw. 667. And if a surety takes a bond as a reward for doing a thing, it is void. 3 Salk. 75. See Condition.

On the forfeiture of a bond, or its becoming stale, the whole penalty was formerly recoverable at law; but here the courts of equity interposed, and would not permit a man to take more than in confidence he ought, viz. his principal, interest, and expenses, in case of the forfeiture accrued by non-payment of money borrowed; the damages sustained, upon non-performance of covenants; and the like. And a similar practice having gained some footing in the courts of law, see 2 (Keb. 57). 555. Salk. 596, 597. 6 Mod. 11, G. 121), the statute 4 and 5 Ann. c. 10, at length enacted, in the same spirit of equity, that, in case of a bond, conditioned for the payment of money, the payment or tender of the principal sum due, with interest and costs, even though the bond be forfeited and a suit commenced thereon, shall be a full satisfaction and discharge. The court of Chancery will not generally carry the debt beyond the penalty of a bond; yet in a case, where a plaintiff sought relief against such penalty, though it was decreed, it was on the payment of the principal money, interest, and costs; and notwithstanding they exceeded the penalty, this was affirmed, 1 Vern. 350. 1 Eq. Ab. 92. 6 Vin. tit. Penalty. 3 Comm. 435. And where the condition of a bond is to perform a collateral act, damages may be recovered beyond the penalty, and the court of K. B. will not stay the proceedings on payment of the money into court. 2 Term Rep. 388.

All persons who are enabled to contract, and who are supposed in law to have sufficient freedom and understanding for that purpose, may bind themselves by bonds and obligations. 5 Co. 119. 4 Co. 124. 1 Roll. Abr. 342. If a person, illegally imprisoned, enters into a bond, during such restraint, to the person who causes it, the same may be avoided.
avoided for dures of imprisonment. Co. Lit. 253. 2 Inf. 483. The bond of a femme covert is in fact void, and shall bind neither her nor her husband. The bond of an infant, even for necessaries, with a penalty for payment, is void. But if an infant, femme covert, &c., enter with a stranger, who is not subject to their disabilities, into an obligation, the stranger shall be bound by it. However, infants, idiots, femme coverts, and aliens, may be obliges. Sole corporations, such as bishops, prebends, parlons, vicars, &c., cannot be obligees; but a corporation aggregate may take any chattel, as bonds, leases, &c., in its political capacity, which shall pass in succession, because it is always in being. Cro. Eliz. 464. Dyer, 48 a. Co. Lit. 9 a 46 a. Hob. 64. 1 Rol. Abr. 515. If a drunken man gives his bond, it binds him; and a bond without consideration is obligatory, and no relief shall be had against it, for it is voluntary, and as a gift. Jenk. Cent. 109. But on the general issue, the defendant may give in evidence that they made him sign the bond when he was drunk that he knew not what he did; and though a voluntary bond cannot be relieved against in equity, it may not be paid in a course of administration, so as to take place of real debts, even by simple contract; yet it shall be paid before legacies. 1 Chan. Cai. 157. An heir is not bound, unless he be expressly named in the bond, though the executors and administrators are. Dyer 13. Two or more persons may bind themselves jointly in an obligation, or they may bind themselves jointly and severally; in which last case, the obligee may free them jointly, or he may free any one of them at his election; but if they are jointly and not separately bound, they must be freed jointly; and in such case, if one of them dies, his executor is totally discharged, and the survivor or survivors only chargeable. 2 Rol. Abrid. 148. Dyer 19 310. 5 Co. 19. 1 Salk. 393. 1 Lutw. 696.

With regard to discharge of bonds, if a lesser sum be paid before it is due, and the payment is accepted, it shall be good in satisfaction of a greater sum; but after the money is due, a lesser sum, though accepted, shall not be a satisfaction for a greater sum. Moore, 677. 3 Bullst. 301. 1 Lutw. 464. It has been adjudged, that the acceptance of one bond cannot be pleaded in satisfaction of another bond. Cro. Car. 85. Moore, 872. Cro. Eliz. 716. 727. 2 Cro. 579. A bond, on which neither principal nor interest has been demanded for 20 years, will be presumed in equity to be satisfied, and be decreed to be cancelled; and a perpetual injunction granted to stay proceedings thereon. 1 Ch. Rep. 79. Finch Re. 78. Satisfaction, moreover, may be presumed within a less period, if any evidence can be adduced in aid of the presumption, such as the settlement of an account in the intermediate time, without any demand. Yet length of time is no legal bar; and is only a ground for the jury to presume satisfaction. 1 Term Rep. 270. As to the pleading of performance of a condition, the defendant must set forth in what manner he has performed it. By lat. 8 and 9 Will. 11. c. 11. § 8. in actions on bonds for performance of covenants, the plaintiff may affirm as many breaches as he pleases, and the jury may assess damages. In debt on a bond, the defendant may have several pleas in bar. 1 Salk. 180. But a defendant in an action on a bond cannot plead, "Non est factum;" and a tender as to part. 5 Term Rep. 97. In debt on an obligation the defendant cannot plead, "Nil debet," but must deny the deed by pleading "Non est factum;" for the seal of the party continuing, it must be dissolved, "EO ligamine quo ligatur." Hard. 532. 1 Hob. 218. In bonds to save harmless, the defendant being prosecuted, is to plead "Non damnificatus, &c." The sealing of any bond, bill, &c., for money, being the property of any one, is made felony, as if offenders had taken other goods of like value. Stat. 2 Geo. II. c. 25.

Form of a bond or obligation, with condition for the payment of money. "Know all men by these presents, that I David Edwards, of Lincoln’s Inn, in the county of Middlesex, esquire, an held and firmly bound to Abraham Barker, of Dale-hall, in the county of Norfolk, esquire, in ten thousand pounds of lawful money of Great Britain, to be paid to the said Abraham Barker, his executors, administrators, or assigns; for which payment well and truly to be made, I bind myself, my heirs, executors, and administrators, firmly by these presents, sealed with my seal. Dated the fourth day of September, in the twenty-first year of the reign of our sovereign lord George the third, by the grace of God king of Great Britain, France, and Ireland, defender of the faith, and so forth, and in the year of our Lord one thousand seven hundred and ."

The condition of this obligation is such, that if the above bounden David Edwards, his heirs, executors, or administrators, do and shall, well and truly pay, or cause to be paid, unto the above named Abraham Barker, his executors, administrators, or assigns, the full sum of five thousand pounds of lawful money of Great Britain, with lawful interest for the same, on the fourth day of March next ensuing the date of the above written obligation, then this obligation shall be void and of none effect, or else shall be and remain in full force and virtue.

David Edwards, (L. S.)

Sealed and delivered, being first duly ramped, in the presence of

George Carter,

William Browne.


Bond of Arbitration. See Arbitration.

Bond of Affirmation. See Assignment.

Bond, bail. See Bail.

Bond, counter. See Counter-bond.

Bond of resignation. See Resignation.

Bond-tenants, are the same, in respect to the nature of their tenure, with copy-holders, and customary-tenants. Blackstone’s Com. vol. ii. p. 148.

Bond, in Majority and Brick-laying, is when bricks or stones are, as it were, knit and interwoven; and when they sly, make good bond, they mean that the joints are not made over, or upon other joints; but reach at least six inches, both within the wall and on the surface, as the art of building requires.

BONDAGE properly denotes a state of servitude or slavery.

Bondage, bondaegium, in English Law Writers, the same with VILLAGE.

Tenants in bondage, paid heriots, and did fealty; they were not to fell trees in their own garden, without licence of the lord.

The widow of a tenant in bondage held her husband’s estate, quamdiu visserit sua maritui.

Bondage by the forelock, or bondaegium per anteciores crimina capit, was when a freeman renounced his liberty, and became slave to some great man; which was done by the ceremony of cutting off a lock of hair on the forehead, and delivering it to his lord; denoting, that he was to be maintained for the future.

Such a bondman, if he reclaimed his liberty, or were fugitive from his master, might be drawn again to his servitude by
The Romans had two kinds of bondmen; one called servi, who were either bought for money, taken in war, left by succession, or purchased by some other lawful acquisition; or else born of their bondwomen, and called servi. Both are called in our law villains in grofs, as being immediately bound to the person and his heirs. We may add a third kind of bondmen mentioned by Justinian, called adscripti sive glebe, or agriculsi; who were not bound to the person, but to the ground or place, and followed him who had the land. These, in our law, are called villains regardants, as belonging to the manor or place.

In the English as well as Scottish laws, those called by the Romans servi are sometimes also denominated naturi, as being born on the land. See NATUR.

BONDORF, in Geography, a country of Germany, in the circle of Swabia, about five leagues long, and between one and three broad, lying between the Drigaw and the Landgravites of Baar and Stuhlingen. It had formerly lords of its own, but in 1613 was purchased by the abbey of St. Blaise. It is affected in the imperial mariculata, at 25 florins, 33 krutzens; and its contingency to the chamber, at Wetzlar, is 12 rixdollars, 15½ krutzens. This territory comprehends the town of Bondorf, 28 miles N.N.W. of Zurb, and several villages.

BONDOUT, a kingdom of Western Africa (formerly a part of the kingdom of Bambouk), the capital of which is Fatteconda, near the eastern bank of the river Falame. This kingdom is bounded on the north by Kajagga, on the east by Bambouk, on the south-east and south by Fenda and the Simbani wilderness, on the south-west by Woulili, and on the west by Fouta Torra. It lies between N. lat. 12° 32' and 14° 32', and between W. long. 10° 8' and 11° 18'. Mr. Park, in his journey through this kingdom towards the east, found that the country, though covered with woods, like that of Woulili, rose into hills, especially towards the Falame river, and that the soil varied to a considerable degree; but wherever the land was cleared, great natural fertility was observable. Bondou, in particular, may literally be pronounced "a land flowing with milk and honey." Both these articles, together with rice, and 1-inch corn of two or three species, were to be obtained at a small expense. Of their honey, the unconverted or pagan natives make an intoxicating liquor, much the same as the mead, or metheglin, of Europe; and this, and the wine of the palm-trees, constitute their principal liquors. The price of a fowl in Bondou was a button, or a small bit of amber; goat's flesh and mutton were proportionably cheap; and for six or eight amber beads Mr. Park might at any time have purchased a bullock. The domestic animals are nearly the same as in Europe. Swine are found in the woods, but their flesh is not esteemed. Probably the marked abhorrence with which this animal is held by the natives of Mahomet has spread itself among the Pagans. Pottery of all kinds, the turkey excepted, may be had everywhere. The Gourin tree and red partridge abound in the fields; and the woods furnish a small species of antelope, of which the venison is highly and deservedly prized. Of the other wild animals in the Man-
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slave corporally; but cannot deprive him of life for any offence, nor even fell him to a stranger, without first bringing him to a public trial, called a "Palaver," before the chief men of the town; and on such occasions the cause of the slave is pleaded by the native Mahometans, who are a sort of professional advocates. These inducements indeed extend only to native or domestic slaves; for captives taken in war, and those who are obtained in traffic, may be sold at pleasure, and treated as the owner thinks proper. Park's Travels into Africa. Rennell's Proceedings of the African Association.

BONDUR, a town of Asia Minor, the province of Natois, 23 miles west of Tarsus.

BONDEE, in Ornithology, the honey buzzard (Falcio apivorus,) stands under this name in Buffon's History of Birds. The French writers of the present day also call it bondree.

BONDUC, and Bonduccella, in Botany, (Plumiier.)

See Guillaudina.

BONDUCH, in the Materia Medica, a name by which many authors have called the Molucca, Marfao, or Berzoar nut.

BONE, in Anatomy. The bones are the most solid parts of animals, and may be regarded as the walls of a building supporting and containing the other parts. The human body is composed of a pile of bones, the extremities of which are variously shaped, and adapted to each other, and calculated to admit of a variety of motions. Bones appear to be composed of a vascular substance, not differing materially in structure from that of the rest of the body, except that there is deposited in its interstices phospfat of lime, which gives to the whole mass rigidity, strength, and a permanent figure. That state of the vessels in which they secrete, and deposit, earthy matter, occurs in diseases of other parts of the body. The nutrient vessels of arteries, membranes, and ligaments, occasionally deposit lime, and cause the ossification of those parts. The earth of bone is also deposited in some species of tumours, and often in considerable quantity, and in an irregular manner in the cellular substance of a limb, when the bone of it is diseased. After this general view of the subject, we proceed to give an account of the structure of a bone, both with respect to the arrangement of its earthly particles, and with relation to its vascular texture.

It is customary, however, in giving an account of the structure of bones, first to describe their original formation in the fetus; and this is useful, because it demonstrates the simplicity of the process, and tends to refute old and erroneous ideas respecting it. The parts of the young fetus which are afterwards to become bones, are merely a veiicular, gelatinous substance, scarcely distinguishable from the other parts; afterwards the outline of the bone becomes evident, and its substance is rendered white and firm, in proportion to the quantity of lime deposited in it. The quantity deposited in it, even at the time of birth, is only sufficient to give firmness to the whole mass, but not to prevent its flexibility. The extremities of all the long bones consist of large portions of cartilage, and thence, by degrees, become bony. This change is effected by an alteration, first, in the organization of the part; the cartilage is absorbed, the vessels enlarge, so as to admit of injection, and then they appear to have the power of depositing earthly matter, or forming bone. The formation of bone begins in the centre of a cartilage, and gradually extends from thence to the remote parts, so that the separate piece of bone, formed at the extremity, remains to nearly the period of puberty, conjoined to the body of the bone, by a crust of cartilage. In this state it is technically termed an epiphysis. The observation of these facts led formerly to the erroneous notion, that it was necessary that cartilage should exist, prior to the formation of bone; and that it was converted by pressure, or in some inexplicable manner, into bone. It was a wall of argument to refuse this opinion. We can perceive a striking advantage that results from the bones of the fetus being formed as they are. Their flexibility admits of the form of limbs becoming adapted to the varying figure of the pelvis, through which they must pass, and their elasticity, which is powerful, refles them afterwards to their natural shape.

The subject which first engages our attention, in examining the structure of bone, is the arrangement of the earthy parts. The phospat of lime is deposited by the arteries in minute points or particles, and these being placed lengthwise, with respect to each other, form fibres; again these fibres being placed parallel to one another, form bony plates, scales, or lamina. That bones are fibrous and laminous, is evident from a mere inspection of them in the fetal state; that they are so in the adult subject may be demonstrated by calculation, or long exposure to weather: in which cases the connecting vascular substance is more suddenly or slowly diffipated, and thus the arrangement of the earthly matter is rendered visible. The earthly fibres of long bones extend themselves in a direction parallel to the axis of the bone; in broad bones they shoot out in every direction, like rays from a centre. In long bones the earthly matter is consolidated in the circumference and sides, so as to form thick and strong walls; whilst a tube or more spongy bony structure is found in their centre. In broad bones a similar structure is observed; the earthly matter is consolidated exteriorly, so as to form dense plates or plates; whilst interiorly the fabric of the bones is spongy or cancellous. In the internal spongy part of bones the marrow is deposited. In the middle part of long bones the walls are very thick, being composed of a great number of bony lamelles, and these walls gradually become exinated as they approach to the extremities of the bone, where they are proportionally very thin. Long bones are also slender in the middle, but at the same time strong, on account of the great quantity of earthly matter thus consolidated to form their walls; whilst there is but little cavity or medullary structure. These bones expand greatly at their extremities, in order to afford an extent of surface for the formation of joints, and for the support of the weight of the body. In the extremities of long bones, though the walls are thin, there yet exists a great deal of bony matter, which is deposited so as to leave interspaces between its fibres, forming what is termed the cancellous structure, or lattice-work of bones. It has been therefore concluded, that the quantity of earthly matter may be nearly equal in each part of a bone, and give to it an equal degree of strength; but that it has this difference of arrangement, that the tibia is consolidated so as to form very thick and dense walls, occupying but little space, and leaving but little internal cavity, whilst in the extremities it occupies a greater space, and forms a less solid kind of fabric. It would be desirable to ascertain, with some precision, where similar circumstances are to be met with in broad bones; and though no precise rule can be given, yet this may be admitted as a general truth, that where a broad bone swells out into a protuberance, there we shall find the walls or tables thin, and the cancellous structure abundant; and, on the contrary, where a broad bone is condened so as to occupy but little space, there we shall find the tables proportionately thicker, and the cancellous structure leaves in quantity.

Having thus described the arrangement of the earth of bones, we may next enquire into the advantages which result from this structure. The long bones are made slender.
in the middle, to allow of the convenient arrangement of large muscles round them; they become expanded at their extremities to afford an extent of surface for the formation of joints, and the support of the weight of the body. A cavity is left in the middle; for if all the earthy matter had been compacted into the smallest possible space, the bones would have been such flender items, as to be very unfituble to their offices; and if they had been of their present dimensions and solid throughout, they would have been unnecessarily strong and weighty. Besides, it can be proved by mathematical demonstration, that the strength of the bone becomes augmented, in proportion as its fibres are placed at a greater distance from its centre.

With regard to the vascular structure of bones, there can be no doubt but that it exactly resembles that of the rest of the body. That bones poifles numerous arteries, is proved by the injection of young bones from the general arterial sytem of the subject; for they are made very red by the injection conveyed into them by numerous, though minute arteries, which enter them by pores evident on their surface. The effect of feeding animals with madder is an additional and striking proof of the same fact; for the bone becomes deeply tinged with the red colour of the madder. The cause of this phenomenon has of late been explained by Dr. Rutherford: he has shewn that it arises from a chemical attraction that exists between earths and certain colouring materials, which causes them to combine to intimately as to form pigments which are called lakes by painters. Dr. Rutherford dissolved madder in distilled water, and added to it muriate of lime, which produced no change of appearance in the solution; on the further addition of phosphat of soda, a double decomposition took place; the muriatic acid combined with the soda, and the phosphoric acid with the lime. The phosphat of lime also combined with the madder, and they were together precipitated, forming a beautiful red powder. If blood be constantly conveyed into bones by numerous arteries, it must be returned from them again by veins, or otherwise it must accumulate in them in considerable quantities. That bones poifles absorbents in common with other parts is equally clear, and is proved by their mode of growth, and also by their discharges. The growth of the tube of a bone is a proof of the mutation of its parts by absorption; for if bones grew merely by new matter deposited on the surface, the tube of the bone should be of the same dimensions in the adult as in the foetus: on the contrary, however, the tube enlarges, and bears the same proportion to the whole bone in either state. If any number of lamina of the sides of a bone, or if a portion of its whole substance perish, the mortified part is detached in the same manner that it is in soft parts; and this detachment is manifestly the effect, in the first instance, of the agency of the absorbing vessels. Though a portion of animal substance has perished, it still poifles the same powers of cohesive attraction that it did while living; it still tenaciously adheres to the living parts; but a space takes place all round the dead portion, and the production of that space can only rationally be attributed to the removal of parts by the absorbing vessels. In diseases of bones their form becomes entirely altered, if an incised depression of matter takes place in their internal parts; and this alteration of form could not happen unless the walls were removed by absorption, and deposited anew in conformity to the augmented bulk and figure, which the diseased deposition had occasioned. Not to cite lesser instances, one may be mentioned, which Mr. Hunter used to shew in his lectures, of a very large and globular bony tumour, which had formed in the extremity of one of the bones of the leg in an ox. The tumour was so solid, that the section of it admitted of being polished, and the walls of the bone had become thin, and of a spherical form, so as to make a neat kind of case containing this bony tumour. That bones poifles nerves as well as arteries, veins, and absorbents, cannot be doubted; for though they have naturally but little fusibility, they become extremely painful when diseased; and again a fungus sometimes grows out of a bone, which is sensible, though it may have no connection whatever with the surrounding soft parts; of course it must have derived its nerves, by means of which it poifles its sensation, from the bone out of which it arose. That the vessels and nerves of a bone are connected together by common cellular fusibility, as in other parts of the body, is demonftrated by soaking a bone in dilute muriatic acid, which dissolves all the lime, and leaves the vascular matter a little thickened, but perfectly flexible. We then see that this vascular and cellular matter has a laminated arrangement corresponding to that of the earthy, which has been described, so that between each layer of earthy matter, there is a layer of soft substance, and of course the different layers of soft substance are connected by vessels and cellular membrane, which intervene between the bony fibres, and connect the different strata together. Bones are covered by a strong, firm, fibrous substance, termed periosteum, on which the vessels are first distributed; from this they descend, connected by cellular substance, between the fibres of the bone. The vessels and nerves of the bone enter it through holes which are evident on the surface, and which are larger and more numerous in the extremities of the long bones than in the middle. The vessels do not penetrate the bone in a transverse direction, but obliquely, running transversely through a certain number of lamelle, and then taking a perpendicular course between others, which prevents the bone from being weakened, particularly at any one part, by that want of earthy matter which is necessary to leave room for the admission and distribution of vessels.

The marrow that is contained in bones is of an unctuous nature, and in herbaceous animals, hardens when it becomes cold; but it remains fluid in those which are carnivorous. Some of the red parts of the blood are deposited with it in young animals, but in those that are adult it is no longer tinged with blood. The marrow is contained in fine cells, which do not communicate with one another, like those of the common cellular substance. This is proved by sawing a bone through, and keeping it in a temperature which will preserve the marrow fluid, with the part which is sawn downwards. Under these circumstances, if the cells communicated, the gravitation of the liquid marrow would cause it quickly to drop out, and leave the cells empty; but this does not happen. The cells which contain the marrow are lodged in the cancelli of the bone, at the extremities of the long bones; but in the middle they are unsupported by this kind of osseous structure. The cellular substance which contains the marrow, being condenfed upon the inside of the walls of the bone, and adhering to them, has been termed the periosteum internum. In the principal bones we perceive arteries, much larger than those for the nutrition of the bone, which penetrate the walls obliquely, and spread their branches upon the medullary cells, for the nourishment of these parts. That these are the chief nutrient arteries of the marrow cannot be doubted; and it has been contended, that they have exclusively this power, and that they do not communi-
fidered as a very strange peculiarity, were not the minute contiguous nutrient arteries to interconnect with one another. The writer of this article is of opinion, that they do in this, as in other instances, for it is common in amputation to cut off the trunks of the medullary arteries, and yet the marrow of the remaining bone does not perish; and, again, the bone may be injected from the medullary artery alone. We may next inquire into the uses of the marrow. Havers thought that it transmuted through the bone, and by this means prevented it from becoming brittle; nay, he even described the pores through which such transmutation was supposed to take place. The cells, however, which contain the marrow are perfect vessels; and we know that no transmutation of contained fluids takes place through the membranes which contain them during life, though in consequence of putrefaction it does after death. If a bone be deprived of its periosteum in a living body, no transmutation of oil from its surface takes place; and even after death a recent bone may be deprived of its periosteum, and put in warm water for a considerable time, and yet no sudden transmutation of oil from the surface will take place, as might be expected if there were natural channels for this purpose. The canals which Havers described, are probably the passages through which the vessels are transmitted. If then this opinion of the use of the marrow be unfounded, we have still to inquire, for what purpose is it designed? The utility of the bones being formed as they are, small and tubular in their middle, expanded and spongy at their extremities, has been already explained. If then spaces are necessarily left in their interior parts, those spaces must be filled with something, for they cannot be left void, or the immense pressure of the atmosphere would crum their parietes, and aboli the vacuum. There is no matter than the animal body more suitable to fill their spaces than the marrow; and it is to be regarded as a part of the adipofol fylm of the animal. In corroboration of this remark, it has been observed, that in impoverished and drophical subjécts, where there is no fat in other parts, there is likewise none in the bones; and if a bone be sawn, and the medullary cells broken down, so that the fluid which they contain may drop out upon paper, that it will not penetrate it, and render it transparent like oil; but, on the contrary, that it will encrust upon it, from its being of a gelatinous nature, like that fluid which is found in the interstices of the common reticular or cellular substance. From the circumstances which have been detailed in the foregoing account, viz. the great and general vacuolity of bones;—the quantity of soft substance existing in every part of them;—their growth and mutation of form in disease, &c.;—it is natural to conclude, that there exist in the composition of every bony fibre, arteries for its formation, absorbents for its removal, cellular substance for the connection of its parts, and nerves to give animation to the whole. In this view of the subject, we perceive no essential difference of structure between bones and other parts of the body; nor do we expect any essential difference in the functions of their nutrient, and other vessels. We naturally conclude that bony fibres are formed and repaired, and that they undergo mutation or removal in the same manner, and from the same causes, that soft parts do. Mr. Hunter, however, from observing the disintegrated appearance of the bones of animals, who have been at one time fed with madder, and at another with common food, and observing that the exterior fibria was red if the animal was killed after having been for some time fed with madder, and white, if it had only taken its ordinary food, concluded that bones grew by a deposition on their surface, and a correspondent removal of the internal part of the walls of the bone. Mr. Hunter also, to investigate the truth of Du Hamel's opinion respecting the growth of bones, bored two holes in the titia of a pig, one near the upper end, and the other near the lower; the space between the holes was exactly two inches; a small leaden shot was inserted into each hole: when the bone had been increased in its length by the growth of the animal the pig was killed, and the space between the two holes was exactly two inches. Mr. Hunter's experiments and opinions are published by Mr. Home in the second volume of Transact.ions of a Society for the improvement of Medical and Chirurgical Knowledge. We forbear to give a more detailed account of them, or enter into any discussion of the subject, but refer the reader to the original paper, because we believe that no theory will be found, on consideration, to be adequate to account for the phenomena of the growth and difeases of bones, except that which admits the bony fibres to be of the same structure as the soft fibres of the body, and consequently concludes that both are formed, removed, and renovated in the same manner. We subjoin some references to the instructive works on the structure of the bones. Albini icones ossium fictus, cui accedit osteogen. brevis historia.—Ann. Acad. J. G. Walter handbuch von den Knochen. Reicheli. Difl. de ossium ortu & structura in Sannit. theaur. diff. vol. ii. Boehmer institutiones osteologicae. Blumenbach Geschihte und bedeutung der Knochen. The works of Ruskych. Nebitz's human osteology explained. Kerckring anthropograph. ritisgraph. & osteogenia factum. Du Hamel in memoires de l'Acad. des Sciences, 1745. Hailer. in op. minor. tom. ii.

Bones, in Chemistry and the Arts. The analysis of bone, and the products obtained from it by various chemical processes, deserve considerable attention, as this great class of animal substances ranks among the most important to the chemist. So great a similarity is found in the composition of the bones of different animals, that their properties may first be described generally. Bone, when first taken from the animal, is moist and greasy on its surface; and if cylindrical, it contains a quantity of the peculiar fat called marrow. When this is separated, and the bone exposed to the air, it gradually dries, becomes brittle and white; but the articulating heads long remain moist, greasy, and yellow. When once dry, and kept in a dry and airy place, they are scarcely susceptible of further spontaneous alteration. The effect of mere heat on bone has long been known to chemistry and the arts, as furnishing bone very important articles of chemical manufacture. Heated in the open air, bone first becomes oily and yellow, gives out a watery vapour, to which succeeds a thick, dense, fetid smoke, which readily takes fire, and when once kindled, affords heat enough, when the bones are in sufficient quantity, to complete the entire calculation, which lasts for many hours, during which they become successively black and carbonaceous, brittle, and at last, when every thing combustible is consumed, they remain nearly white, friable, light, and extremely porous or cellular in texture, and retaining their original shape and bulk. This process of burning bones in the open air, in large heaps, is performed near great towns for the sake of the earthy fult bone-off, which is left behind, and forms on an average about half the weight of the fresh bone. It is composed chiefly of phosphate of lime, and is used by the allied arts as the material for tiles, and for a few other purposes. But the volatile products which are wafted in the above procefs, are highly valuable when the bones are diffilfed in close vessels, without addition as before, but with a proper apparatus to receive and condense the volatile products. In those circumstances, with a heat at first gentle, but gradually increasing,
increasing, bone yields, at first, a limpid water, with a peculiar animal oily fluid, which soon becomes impregnated with carbonic acid ammonia, together with an oil, at first of a clear yellow, pungent, and not unpleasant to the smell, but afterwards tawny brown, and even black, by the increasing heat, strongly fluid and ammoniacal. With the empyreumatic oil, a large quantity of sulphurated hydrogen, of carbonated hydrogen, and of carbonic acid gas escapes. The products of this distillation, when condeised, are the ammoniacal water, and the empyreumatic oil; the former contains, besides carbonat of ammonia, a portion of sebacic and proceic acid united with the alkali; the oil may be separated into the fats and more empyreumatic, by charging the receiver occasionally, and keeping apart the first portions of the oil as the purest. If this oil is again repeatedly distilled by itself from clean vessels with gentle heat, it becomes at last as colourless as water, pungent, and not very unpleasant to the smell, so volatile at a common temperature as only to be kept by inverting under water the mouths of the vessels that contain it, and acting in medicine as a powerful sudorific. It is called from the name of the inventor, Dippel's Off., which fee.

The only valuable part of the products of the distillation of bone is the ammoniacal, or volatile alkali, which is mixed with every part of the distilled liquid, and is afterwards purified by subliquefactive affilating in the formation of the Murtri of ammonia, or forming the pure Carbonat of ammonia of the fluids, the fat volatile, spirits of hartshorn, &c. When the distillation is discontinued, the bones remain in the retort of a brown colour, and swimming in a black, thick, extremely fetid, terebinous oil. If they are then gradually heated to redness in close iron vessels, every thing volatile is disdiffated, and the earthy part remains dry and friable, still retaining the original form of the bones, but thoroughly impregnated with the charcoal of the oil, so as to become a fine glossy black. This is afterwards ground to a fine powder, mixed with size into cakes of a convenient weight, and forms one of the species of lamp-black, used very largely as a pigment. The harder and compacter bones, such as ivory, furnish a similar and more valuable black pigment, simply by heating to redness in close vessels.

But the analysis by heat, though it furnishes some valuable articles of commerce, is not well calculated to exhibit the constituent parts of bone in their proper characters.

In fact the ammonia, probably much of the oil, and all the fats, are formed by the action of heat out of the real constituents of bone, as they exist in the animal.

Water and acids are the chief agents to be used by the chemist.

Cold water has scarcely any action on bone, but by long maceration its texture becomes more loose and open, and the gelatinous part becomes gradually changed, as by slow animal putrefaction.

Hot water acts with great ease upon bone, when reduced to small pieces by rubbing or bruising; the first effect is to separate most of the natural oil of bone which tiles to the top, and when cool congeals to a fatty fat. The water then dissolves the gelatine, which is found to compose a very considerable part of the substance, even of the dried and most compacter bone; and in this method a clear infusible pure jelly is extracted, rendering the water, even when in large proportion, of a fiff, tremulous consistence when cooled, which, by evaporation, leaves at last a strong, hard glue.

The experiments of M. Pelletier on this subject are important. This accurate practical chemist took six pounds of dry bone shavings, procured from the button-mould makers, macerated them for two days in cold water, and then boiled them for nine hours with 24 quarts of water. The product was a very strong clear jelly, and at the bottom of the vessel the marc, or earthy residue, which was pressed in order to separate the portion of somewhat turbid jelly, with which it was intermingled. By subsequent boiling down, the jelly became solid when cold, so as to bear to be cut into firm flakes, which were hung up on wires in a place under cover from the weather (as in the common manufacture of glue), and in a fortnight became hard, brittle glue of inferior quality. The produce was 1/3 of ounces of clear glue, half an ounce more from the marc, and somewhat foul, and the marc itself weighed 4 lb. 3 oz. The loss in the operation amounted to 13 oz. In like manner 50 lb. of ivory shavings, exhausted by repeated boiling, gave 9 lb. of clear glue, and 50 lb. of the marc remained.

These facts are important to the manufacturer; nor is the use of bone less interesting as an article capable of supplying much good and wholesome nutriment to man and other animals. In the making of soups it is a matter of common observation, that bones contribute, when boiled with the meat, to the richness of the liquor; but it is not commonly known how much they may be made to add to the nutritive quality; nor is it generally known that the hard and drift bones, even those that have been kept for years, retain their gelatinous part unchanged.

The exact proportion of jelly cannot easily be ascertained by extraction with water, for even when converted into the hardell glue, it has become intimately united with a portion of this fluid; and it is by no means certain that the utmost degradation of glue equals the degree of hydros of natural gelatin, as it exists in the more solid bones.

The quantity of jelly is also much increased, either by giving the water by which it is extracted a higher heat than the boiling point, or by reducing the bones to a fine powder, and using repeated coction and pulverization.

The former method was used by Papin, who, in his valuable experiments on the solubility of animal substances, when confined with highly heated water in his Dig/er, found that he was able to extract every thing from powdered bone, but the more earthly part. The latter mode has been brought into notice by M. Proult, in an important economical-chemical memoir on the "Method of ameliorating the subsistence of the Soldier," published at Madrid, in 1791.

Though there is a great general similarity between the bones taken from different parts of the body, they differ much in the relative portion of fat, of gelatin, and of earth. The younger animal is, the less earthly silt, ceteris paribus, is contained in its bones. The large, round, joint-heads of the thigh, and other large bones, contain much more oil than the rib or blade bones, as is seen when they are exposed to the air; the latter soon becoming dry and clean, but the former remaining long foul and greasy.

No method of extracting all the soluble part of bone answers the purpose so completely, as long boiling in Papin's digester with a very great heat; the earthly residue then remains quite friable in the fingers, and gives little, if any, volatile, oily, or ammoniacal product on burning. But the jelly which remains in the water, and the oil which swins at the top, are found to have acquired a burnt unpleasant taste; and in the proces of a considerable quantity of gas is generated, which diffuses from partial decomposition of the soluble part. On the other hand, even after repeated boiling and laborious pulverization, unfilled by a higher heat than that of boiling water, the earthly residue still feels clammy and cohesive between the fingers, and retains some of its oil.

M. Proult affirms, that the knuckle and joint bones simply chopped into small pieces, and boiled for a quarter of an hour in a common copper, yielded no less than one fourth of their weight of fine inhipid fat, which rose to the top of the
the water, and on cooling concreted into the confidence of fact. The hallowed bones yielded about one eighth of fat. The utmost economy of bones, therefore, when used as human food, may be obtained in the following method. First chop the fresh bones into small pieces, and extract the fat in the way just mentioned; then dry the bones, and powder, or reduce them to a fine paste, by some pretty strong mechanical power; and boil them with about ten times their weight of water, for some hours, till half the water is wasted, more or less according to the kind of bone; the joint and thick bones making a richer jelly than the thin bones, and therefore requiring somewhat less boiling down to make a jelly of a determinate consistence.

M. Proust finds that this proportion of water is sufficient to leave a jelly of about the same richness as would be produced by dissolving one ounce of bone jelly, dried to the consistence of portable soup, in thirty-one ounces of water, and makes a jelly of a very agreeable degree of richness. The extraction is much assisted by using an iron vessel with a close lid, to give a heat somewhat greater than that of boiling water, though not to the degree of a Papin's digester.

In all the above experiments on the extraction of jelly and fat from bones, the uncooked bone is understood to be used. The bones of built meat, though deprived of some of their extractive matter, are still rich in nutriment; but roasting renders them entirely unfit for this purpose.

The earthly part, which compose cries, an average about half the weight of the larger bones of animals, was discovered by Gahn, a Swedish chemist, to consist of the phosphoric acid united with a large proportion of lime. It will be more minutely described under the article Phosphat of Lime: and it is the most convenient sub stance from which Phosphorus is prepared. It may here be mentioned, that the stronger acids, such as the sulphuric or nitric separate a part of the lime from this earthly part, but only a part, for when sulphuric acid is added to bone ash, sulphat of lime is formed in great quantity, most of which remains at the bottom of a supernatant liquor, consisting of a great excess of phosphoric acid united with a small portion of lime, and also some sulphat of lime dissolved therein. It should be remarked in the analysis of this salt, that this acid phosphat of lime, is not decomposed by any single acid, nor even by the pure or carbonated alkalies; for, on adding the latter, the precipitate is not carbonated lime, but still the phosphat.

This earthly salt, when in solution, is, however, entirely decomposed by the nitrat or acetate of lead; the lime remaining dissolved in the liquor by the nitric or acetic acid, and the phosphat of lead forming an infusible precipitate. Phosphat of lead is diftinguishable from sulphat of the same metal by being readily soluble in nitric acid. If the phosphat is sprinkled on hot charcoal, the lead is reduced, and the luminous fibres and peculiar smell of phosphorus are perceptible. The phosphat of lime is equally distinguishable from the sulphat of lime by being very soluble in most acids, even when dilute.

Much light has been thrown on the analysis, and with it the physical structure of bone, and of most other of the hard supporting or protecting parts of the body, by the accurate and numerous experiments of Mr. Hatchett, whose researches into these subjects are admirably calculated to shew the extreme advantage which physiology derives from the labours of the chemist, when assisted by accurate knowledge, and guided by a philosophical spirit.

When bones, boiled or fresh, are steeped in any acid, a slight effervescence is perceived, and they presently are rendered soft and flexible by the gradual abstraction of the earthly bases (chiefly phosphat of lime), which becomes dissolved in the acid. If the bone be previously boiled for a long time in water, its gelatin is removed by this liquid: but if the bone is in its natural state, the gelatin also is gradually dissolved in the acid, rendering it yellow and somewhat tenacious. The insoluble residue (except in a few kinds of bone, such as the enamel of the teeth) is either a membrane or a spongy cartilage, retaining the form of the original bone; for, in the process of ossification, membrane or cartilage forms the first basins or rudiments of bone, which is afterwards completed by the gradual deposition of the earthy salts. Though phosphat of lime forms the chief ingredient in the earth of bones of all animals, a small portion of sulphat of lime is mixed with it: and Mr. Hatchett has detected also a little carbonate of lime. The carboenic acid of this is that which occasions the flight of effervescence during the action of the acid; the lime remains dissolved in the acid after the precipitation of the phosphat of lime by pure ammonia. A carbonated alkali then precipitates it together with the now decomposed earth of the calcareous sulphat.

We have thus shewn the great constituent parts of bone to be gelatin, soluble by boiling in water, and giving a line clear jelly; oil, separable, during the boiling, by rising to the top of the water, and when cold concreting into a salt; phosphat of lime, soluble in dilute nitrous muriatic or acetic acid, and precipitable thence by pure ammonia; some sulphat of lime: a little carbonate of lime; and a membranous or cartilaginous substance, retaining the form of the bone after every thing else has been extracted by water and an acid.

For a highly probable opinion on the nature and origin of this membrane or cartilage, we are indebted to Mr. Hatchett, who has shown a number of characteristic marks, in which it most strongly refines its insolubility in water, and which it differs from gelatin. The chief of these are the following:

When dry, it is semi-transparent like horn, and more or less brittle. In this state it refines the action of water very powerfully: for when boiled for many days with this fluid, a scarcely perceptible precipitate is given by nitro-muriatic of tin; a test of dissolved albumen. In this it strikingly resembles coagulated albumen, and as pointedly differs from gelatin, which, as we have seen, is readily extracted by water even from the dryest and hardest bones.

This bony membrane, as well as albumen, is scarcely acted on by cold muriatic and sulphuric and dilute nitric acids, which last readily extracts gelatin from bone. However, after an immersion in these acids of some weeks, the bony cartilage, when taken out and steeped in ammonia, gradually dissolves into a blood-red liquor. But if the nitric acid is heated, the albuminous membrane is rapidly dissolved with the copious discharge of nitrous gas.

With caustic fixed alkali, the bony membrane or cartilage is readily dissolved into a perfect animal soap (a strong mark of resemblance to albumen, and difference from gelatin), and during the process much ammonia is given out. Acids again separate the albumen from the soap, unaltered in chemical properties.

Lastly, the bony cartilage is extremely slow to enter into a state of putrefaction, though kept moist and warm for many weeks; and in this too it resembles coagulated albumen.

Therefore in addition to the above-mentioned constituent parts of bone, we may add albumen, in a condensed state, forming the substance of the original cartilaginous or membranous structure, both of all the organized bones, and, as Mr. Hatchett has also shown, of most of the hard parts which serve for the covering, protection, and armament of almost
almost every part of the animal creation. See the articles Shell, Horn, &c.

The enamel of the tooth is a tangential variety of the bone, being entirely deficient of the albuminous membrane. When an entire tooth is immersed in dilute nitrous acid, the enamel totally dissolves without residue; but the core of the tooth is acted on like other bone, leaving a cartilage of the same shape. The solution of enamel is found to be almost entirely phosphat of lime, by the tests already mentioned, being precipitable by pure ammonia, giving phosphat of lead, by adding the acetate of this metal, &c.

Fifth-bones Dr. Hatchett found to contain rather a larger quantity of cartilage, in proportion to the phosphat of lime, than the bones of quadrupeds. Of the different kinds of horn and defensive weapons, the flag's horn, elephant's tusks, and the other hard and heavy defences, entirely refusible bone; but the horns of cattle, rams, and the softer species, contain soft little earthly residue, that they owe their solidity entirely to the extreme concretion of the other constituents, the gelatin and albumen.

Bones may be softened by a short immersion in a weak acid. This arises from the partial abstraction of the earthy basis; and advantage may be taken of this property in the working of bone, for the various purposes of manufacture to which this article is applied by the turner, comb-maker, cutter, &c. Bone thus softened, is again made hard, by being steeped in alum-water. Alkalies also soften bone, as they do every other animal matter, by beginning to act upon the softer parts. See Ivory.

Bones readily take various colours, which, if diffused in an acid, sink deep into the substance of the bone, and produce a pleasing effect. The metallic solutions are generally preferred for this purpose. To give a green, diffuse verdigris in distilled vinegar, immerse the bones in the solution, put the whole in a vellum, very well clofed, and bury it in a dung-hill, or give it a flow and uniform warmth in any other way for about ten or twelve days. The bones are then found very deeply and permanently dyed green, and capable of a good polish. The once prized Turquoise bone is fibrous bone of various animals, accidentally impregnated with sulphur of copper whitish buried in the earth. To give the artificially dyed bones a finer colour, boil them in nut-oil, and they will then take a very high polish.

A permanent black is given to bone, either by nitrated silver, or in the following manner: boil equal parts of littharge and quick-lime in water, and the bones along with them for some hours, flirring them frequently. Other metallic solutions may be used for different colours.

Or the dye may be given by preparing the vegetable coloured laques, or concentrated dyes; and by rubbing the bone, first with dilute nitrous acid to open its texture, and then rubbing in the dye for some time. This may be applied in various ways, first softening the bone by a weak acid, whereby it is made fit to receive the colour.

Bones are whitened by simple exposure to sun, wind, and weather, being first thoroughly cleaned, and particularly by occasional immersion in brine; thus the bones of seagulls and fish, left for some time on the shore, are found beautifully white and clean. The same effect is produced much more speedily, but perhaps less permanently, by the oxymuratic acid, the bone being exposed for some hours to this acid gas in close vessels, as Mr. Smith of Britoll has observed. The acid first makes the bone yellow, which, by exposure to air goes off, and leaves the bone beautifully white. This colour a little fades, when the bone is kept in close cafes excluded from the light. See Skeleton.

From all that has preceded, it will appear obvious that to the chemist and manufacturer, bone is one of the most curious and valuable of the animal sublimates, though considered vulgarly as little better than refuse, and fettered about without care. Besides its use as a hard and good material for turnery and workmanship of various kinds, it gives, by chemical decomposition, a large quantity of useful, nutritive jelly, fit for human food, or the fame, in the form of glue, for the arts. When subjected to fire, it yields a vast quantity of ammonia, and is actually the material used in very many manufactures of the ammoniacal salts; and the residue, strongly calcined in close vessels, and therefore retaining its carbonaceous ingredient, produces useful and fine black pigments; or, burned with acfes of air, leaves an earthly salt, necessary to some important chemical processes.

Some of the preparations from bone are only used in medicine. Of these, are Dippel's oil, and the left rectified oleum cornu cervi, (oil of hartthorn,) both powerful fungicides, and supposed antispasmodics; the spiritus cornu cervi, (spirits of hartthorn,) so universally known as a stimulant and cordial; and the carbonat of ammonia, often called falt of hartthorn. The white calcined earth of bones, cornu cervi calcinatum, enters into the composition of one or two pharmaceutical preparations, but without exhibiting any obvious properties. In diseases of the bones, where the softening and spontaneous deformity shews an evident want of their earthy basis, this calcareous phosphen has been given with apparent advantage. Of the unprepared bones, the elk's tooth, rhinoceros's horn, and shavings of the dried human skull, &c. are medicines entirely exploded only within a few years from the European pharmacopoeias, and still maintaining high credit in the countries whose characteristic credulity and superstitutions in medicine first brought them into repute. The only real utility of unprepared bone in medicine is found in furnishing, when boiled in water, a light and nutritive jelly for the invalid; and for this purpose, hartthorn shavings are employed with advantage. Memoirs de Pelletier, tom. ii. Proult in the Journal de Physique, tom. ii. Hatchett in the Phil. Tran. for 1799 and 1800. Smith in Beddoes's Wefl of England Contributions. Johnson's Animal Chemistry. Encyc. Method. Arts and Metiers, (Article Ecaillé), &c. &c.

BONES, Diseased of in Surgery. As bones are organized parts of the animal body, they are liable to most of the diseases with which the softer organs are afflicted. These arise from internal causes, or accidentally degree of the hardness of their composition, and the small degree of vascularity, and sensibility they possess, there must necessarily be a considerable difference between the phenomena and symptoms of diseased bones, compared with those of the soft parts. They are naturally endowed with little or no sensibility; but are extremely painful in an inflamed state, when the blood-veffils, which enter their substance, are distended, and the nerves filaments are kept upon the stretch, as in the case of venereal nodes, &c.

Bones may be wounded with a sharp instrument, or contused with a blunt one, in the same manner as the muscles, or integuments; and they will re-unit again, if the injury suffer be not so extensive as to intercept the circulation, or destroy their vitality. But, if a bone be so injured as to perifh, its substance will either be gradually comminuted and dissolved, or cast off in a larger portion, by the process we denominate esfolution. If any two ulcerated surfaces of flesh (fuppoze two contiguous fingers) be applied together, and allowed to heal, they will coalesce, and the vessels from one part will shoot into the other: in like manner, if the articulating surfaces of two contiguous bones (fuppoze
Bone.

(tussock of the tibia and femur), be divided of their carthilage by ulceration, their extremities may coalesce, and form one continuous bone, which is named amphiolys. A stiff joint, from this cause, is irreparable, and in general it may be considered as the most favourable termination of diseased joints: for they too commonly are attended with such disagreeing symptoms as to require amputation, in order to preserve the patient's life. See White Swelling, and DISEASES OF THE JOINTS.

The consideration of Fractures and Dislocations is referred for their proper places in the Cyclopaedia, where will be likewise described the manner of reducing bones, vulgarly called bone-setting. This art, (which requires a very correct acquaintance with the anatomy of the joints and muscles), has, most unaccountably, been often left to ignorant farriers and mechanics, who are totally destitute of knowledge on these subjects! We might, with as much reason, entrust the repairing of a watch, or a mill, to persons who never had an opportunity of examining their mechanism! By accident, it is rarely possible, some good might be done; but the greater chance is, that the instrument would be damaged rather than rectified, in the hands of such unskilful operators.

Bones will, in ricketty and ferous constitution, pass into a state of spontaneous enlargement, or decay, or flexibility, &c. The spongy parts of bones, e. g. the extremities of cylindrical bones, are most liable to become diseased in such subjects, especially during the early period of life; but in venereal patients, who are also very susceptible of morbid changes in the bones, they are their hard parts chiefly which become affected, as in the middle of the tibia, or tibia, or upon the central portions of the frontal and parietal bones. See Rickets, Scrofula, and Lues Veneria.

Some observations on the surgical treatment of diseased bones will be also made under the heads of Caries, Necrosis, Spina Bifida, Distortion, Curation, Mollities, and EXOSTOSIS.

The structure of bones may be altered from several causes; but principally, from either a deficiency, or a redundancy of the phosplait of lime, which enters into their composition, and gives them solidity. When there is too little phosplait of lime, the gelatinous parts of the bones being unable to sustain much weight or resistance, they will become preternaturally flexible; and, on the contrary, when there is too much phosplait of lime, in proportion to the gelatinous part, the bones will be very fragile, and perhaps, may even break from the mere action of the muscles. The flexible state is most common in young persons, and the superabundance of osseous matter is chiefly predominant in old age; but either condition of the bones may occur at any period of life, from peculiar morbid dispositions. The popular notion of our bones being more fragile in cold weather than in hot, is erroneous, and without foundation; since the difference of season makes no difference in the texture of the living bones: and the only natural caule to be affirmed for the fracture of our limbs more frequently in the winter that in the summer, is that of an increased slipperiness and hardness in the ground from frost, &c. which must necessarily occasion more physical violence and frequency in our falls.

Bones, in the funeral solemnities of the ancients.—Divers usages and ceremonies relating to the bones of the dead, have obtained in different ages: as gathering them from the funeral pyre, washing, anointing, and depositing them in urns, and thence into tombs; translating them, which was not to be done without the authority of the pontiffs; not to say worshipping them, still practised to the bones of the saints in the Roman church. Among the ancients, the bones of travellers, and soldiers dying in foreign countries, were brought home to be buried, till, by an express S. C. made during the Italian war it was forbid, and the soldiers' bones ordered to be buried where they died; the reason was, lest the melancholy sight should discourage the people from venturing their lives. Antiquaries are divided as to the manner of distinguishing the bones of the deceased, from those of the beasts and slaves, who were sacrificed at his funeral, and thrown into the fire; probably it was done by disposing the body of the dead in the middle of the pile, and the others towards the fides. Potter's Arch. tom. ii. lib. iv. cap. 6.

The Romans had a peculiar deity, under the denomination of Osfeous, to whom the care of the illumination and knitting of the human bones was committed; and who, on that account, was the object of the adoration of all breeding women. Pitid. Ant. tom. ii. p. 341.

Bones, ossified or petrified, are found in the earth, frequently at great depths in all the strata, even in the bodies of bones and rocks.

There are divers sorts of osseous bone; some of a huge size, usually suppoled to be the bones of giants, but more truly of elephants or hippopotami; others smaller, as vertebræ, teeth, and the like.

It has been disputed whether these be truly animal substancess, or mineral, that is, bones thus figured. Modern naturalists generally allow them to be animal, not merely on account of their figure and resemblance, but of their chemical principles, which are found to be wholly of the animal kind. It is suppos'd that they were reposed in those strata at a time when all things were in a state of solution, and that they incorporated and petrified with the bodies where they happened to be lodged.

In the Philosophical Transactions (vol. lxxiv. p. 427, &c.) we have some observations on osseous bones by the late Mr. John Hunter. They were occasioned by an examination of bones of this kind, found in the caves of Gaienreach and Klaushein, two small villages in the principality of Bayreuth, (or Baireith), and presented to the Royal Society by the marquise of Anspach. These bones are considered more as incrusted bodies than extraneous fossils, since their external surface has only acquired a covering of crystallized earth with little or no change in their internal structure. The principal earth with which bones are most commonly incrusted is the calcareous; and this happens either by the bones being immered in water, in which this earth is suspended, or by water's passing through nativess of this earth, which it dissolves, and afterwards deposits upon bones which lie underneath. Bones which are incrusted seem never to undergo this change in the earth, or under the water, where the soft parts were destroyed; while bones that are fossilized become so in the medium, in which they were deposite at the animal's death. The incrusted bones have been previously exposed to the air; which is evidently the case with these bones, and also with those of the rock at Gibraltar, those found in Dalmatia, and those of the island of Cerigo. They are thus distinguished from fossilized bones; but as they are found in different situations, it is more difficult to account for their present state. Those in Germany are found in caves; the coast of Dalmatia is said to be wholly formed of them; and this is the case with a large portion of the rock of Gibraltar. With respect to the first class of bones, as they are those of carnivorous animals, resembling, in some respects, those of the white bear, and yet differing, in some circumstances, from the present animal of that species, Mr. Hunter figures, that the animals to which they
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BONE.
\hij be'oT.g refortej at diRereiit periods to tlicfe caves, as
In Gibraltar, they
places of retreat, and perifhed in ttiem.
are inoftly the bones of animals of the ruminating tribe, of
the hare kind, and of birds, with fome of a fmall dog, or
Thofe in Dalmatia appear to be
fox, and likewifs Ihells.

From thcfe fafts, it may
moftly of the ruminating tribe.
be prefumed, that their accumulation did not arife from any
inftir.ctive mode nf living, as the fame mode could not fuit
both carnivorous and herbivorous animals. As to the local
tiiftribution of thefe bones, it is neceflary to recur to fuccefiive
fliiflings of the fituation of the fea, in confequence of whicli
vvc may have a itratum of marine extraneous foflils, one of
earth, mixed probably with vcgctKoles and bones of land
animals, a ftratum of teneitrial extraneous foffils, then one
of marine produdiions ; but as the fea carries its inhabitants
along with it, wherever there are thofe of land animals,
there will alfo be a mixture of marine ones; and from the fea
com.monly remaining thoufands of roars nearly in the fame
fituation, we have marine foffils i'.;,mixed with any others.

As all operations rcfpecling the decompolition, as well as
the growth, of animal and vegetable fubftanccs, proceed more
rapidly on the furface of the earth, to which the air has
Hccefs, than within it, we fliall llnd fewer changes as v/e
dcfcend into the earth, and at laft probably arrive at a certain depth, where no change takes place.
Subllanccs,
therefore, that aie foffilizcd at a great depth, and depolited
in Hone, clay, &c. are preferved for a very long time from
putrefaction ; as much to as if they were in a vacuum ; the
beat alfo in fuch fituations being uniform, consmonly about
52' or 53'; and in the colder regions they are ilill longer
preferved.
It has been generally underftood, that in extraneous foflils the animal part is dellroyed
but Mr. Hunter has not found this to be the cafe.
Shells, and bones of
fifh, mull probably have the leall in quantity, having been
longeft in that ftate, otherwifc they {hould have the moll
for the harder and the more compact the earth, the better is
the animal part prelerved ; and this is an argument in
proof of their having been longed in a foflil Hate. In the
foffil bones of fca-a;iimals, as the vertebra of the whale, the
animal part is in large quantity, and exifts in two ftates ;
the one having fome tenacity, but the other like wet dull; ;
in fome of the harder bones it is more firm. In the foffil bones
of land animals, and thofe which inhabit the waters, as the
fea-horfe, otter, ciocodile, and turtle, the animal part is in
In the horni of Hags dug up in Great
great quantity.
Britain and Ireland, when the earth is dilTolved, the animal
part is in confiderable quantify, and very firm.
The fame
obfervations apply to the fodil bones of the elephant found
in England, Siberia, and other paits of the globe; alfo
thofe of the ox kind ; and more particularly to their teeth,
efpecially thofe from the lakes in America, in which tiie
animal part has fuffered verj- little : the inhabitants finding
b'ttle difference in the ivor\- of fuch tulks from the recent,
except its having a yellow ftain ; the cold may probably
afiill in their prefervation.
In incrufled bores, the quantity of animal fubdance is very different in difTcrent bones :
in thofe of Gibraltar, there is veiy little; it partly retains
its tenacity, and is tranfparent, but the fuperficial part dif:

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mucus. Thofe from Dalmatia furnifh fimihir
Thofe from Germany, efpecially the harder bones

folves into
rcfults.

and teeth, feem to contain all the animal fubdance natural
to them, though in this rcfpcft they differ amon"- themfclves.

The bones of land animals have their calcareous earth united
with the phofphoric acid of the aerial, and retain it, when
foffilizcd, as Mr. Hunter thinks, in proportion to the quantity of animal matter they contain.
This he infers from the
quantity of effervefccnce. In fome bones of the whale, put inVOL. IV.

to the muriatic acid, the effervcfcence

is

Dalmatia and Gibraltar bones

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very great ; in the
and in thole of the
German caves, it is very little, fince they contain by much
the largeil proportion of animal fubllance.
From the experiments and obiervation of the ingenious Mr. Hatchett,
(foe Phil. Tranf. vol. Ixxxix. p. 333. we learn thatthe bones
of the Gibraltar rock confift principally of ph.ofphat of lime;
and that the cavities have been partly filled by the carbonate of lime, which cements them together.
Foflil bones, he
fays, refemble bones which, hj combudion, have been deprived of their cartilaginous part
for they retain the figure
of the original bone, without being bone in reality, as one
of the moll effential parts has been taken away.
Such
fufiil, or burned bones, can no more be regarded as bone,
than charcoal can be confidered as the vegetable of v.hicivit
retains the figure and fibrous texture.
Bones which keep
their figure after combullion, refemble charcoal made from
vegetables replete with fibre ; and cartilaginous bones,- which
lole their fnape by the fame caufc, may be compared to lucculent plants which are reduced in bulk and fhape in a
finiilar manner.
Hcnc he i'5 led to quedion if bodies, couiilling of phofphat of lime, like bones, have concurred materially, to fonn drata of limeftone, or chalk
as it appears
to be improbable, that phofphat is converted into carbonat
of lime, after thcfe bodies have become extraneous foflils.
Thededruftion, ordecompofition of thecartilaginou3par^s of
teeth and bones in a foffile itate, mud have been the work of
a very long period of time, unlefs accelerated by the action
of fome mineral principle; for, after having, in the ufual
manner, fteeped in muriatic acid the 03 humeri of a mart,
it

is lefa

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brought from Hythe in Kent, and faid to have been taken
from a Saxon tomb, Mr. Hatchett found the remaining
cartilage nearly as complete as that of a recent bone.
M. Cuvier communicated to the Societe d' Hidoirc Naturelle at Paris, a curious memoir upon the foffil bones of
animals.
The following abridgment has been taken from
the Societc Philomatique, N^ iH. Year VI.
In order to
determine the relations and differerrces that fubfid between
the feveral fpecics of animals that do exid, or have exided
on the furface of the globe he direcled his attention to
the following,
i. The animal which afforded the bones
and teeth, called the bones and horns of the mammouth,
by the Ruffians and Siberians, and of which remains are
found in Europe, is a fpecies of elephant, refembling the
elephant of Afia but differing from it in the alveolx of its
teeth, its tnllis being longer, the angle of its lower jaw more
obtufe, and the laminx of which its grinders are compofed
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thinnei".

though

The

true analogous living animal is not known,
has been hitherto confidered as the ordinary ele2. The animal, of wl\ich the remains are found on

it

phant.
the banks of the Ohio in North America, which the Americans and Englifh have alfo named man mouth, though it
(liflers much from the former.
Remains of it are found
in Europe and Afia.
It mnl): have been r.early as high as
the elephant, but more bulky; its tuflcs are fmallor; its
grinders are armed with large cutting points, of which the
leclioi by wi>ar prefents double tranfverfal lozenges. There
arc three molar teeth on each fide, one of four, one having
fix, and one eight points.
3. The animal of which the
teeth tinged by copper afford the turquois done, and of
which there v/as a mine at Siinore, in Languedoc. The
remains of this fpecies are found in the department of Ain,
in Peru, and elfewhere.
It mull have confidcrably refemblcd
the former ; but the points of its molar teeth are round, and
when worn, their feftion prefents fird, a ci-.cle, then a femioval, and afterwards a figure of a trefoil, which has caufed
them to be confounded with the teeth of the rhinoceros

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D

fo;ni!


Some of these teeth have 12 points, others 6, others 4-4. The rhinoceros. The feet and fragments of the jaws of this animal are found in France, and elsewhere, in which the author has hitherto observed nothing which differs from the common rhinoceros; but, as he has not yet seen an entire bone, he cannot positively affirm that they are identical. 5. The species of rhinoceros, with an oblong cranium, which is found in Siberia, Germany, and other countries. The author has seen teeth, and parts of the jaw-bones, found in France, which appeared to him likewise to belong to this animal; the principal character of this species consists in the long closefit of the nose; the living analogous animal is unknown. 6. A molar tooth with two transversal eminences, which is in the possession of Citizen Gillot; and of which the National Museum posseé a young tooth that resembles neither the teeth nor the germs of any animal yet known, whether living or fossil: the only tooth which this slightly resembles is the last molar tooth of the rhinoceros. This tooth, therefore, indicates the existence of a sixth fossil species, of which the living analogous animal is unknown. 7. The animal twelve feet in length, and fix in height, of which the skeleton was found under ground at Paraguay, and is preserved in the royal cabinet of Spain, at Madrid. The author proves by a detailed comparison of the bones, with those of all the known quadrupeds, that it is a larger and distinct species, more nearly approaching the flinth than any other genus, and that it may be called the giant flinth. Citizen Cuvier, in this place, communicates the interesting discovery he has made, that the flinth (Rhagopus tridactylus, Linn.) has naturally and constantly nine cervical vertebra. It is the first known exception established by Citizen Daubenton, that all quadrupeds have neither more nor less than seven cervical vertebra. 8. The animal, of which the remains are found in the caverns near Caylenreuth and Muggendorf, in the marquatie of Bayreuth, in Franconia. Various authors have considered it as a white bear; but it differs from this animal, as well as from all the known bears, in the form of its head, which is particularly characterized by the projection of the front, by the absence of the small tooth, which all the known bears have behind each canine tooth, by the ossoon channel of the humerus, in which the brachial artery passes, and by several other circumstances in the figure and proportion of the bones. This animal, however, resembles the bear more particularly than any other kind. 9. The carious animal of which the bones are found in the plaiiter-flone of Montemarte: the form of its jaws, the number of its molar teeth, and the points with which they are armed, indicate that this species is referable to the genus Canis; but it does not completely resemble any species of this genus. The most striking distinctive mark is, that the seventh molar tooth is the greatest in the animal of Montemarte, whereas the fifth is the largest in dogs, wolves, foxes, &c. 10. The animal of which the lower jaw was found near Verona, has been considered by Joseph Monti as a portion of the cranium of the hea-cow; a notion which all the geologists have adopted, though it is contrary to the most simple notions of comparative anatomy. This jaw, according to Cuvier, has belonged to an animal resembling, though specifically different from, the mammoths, the animal of the Ohio, and that of Simore. Its most particular character consists in the curve which forms its lympthys. 11. The animal of the flag kind of which the bones and the antlers are found in Ireland, in England, at Macdericht, &c. It is sufficiently different from all the flags, and even the elk, to which it has been referred, by the enormous magnitude of its antlers, the flattening of their superior part, and the branches which spring from their base. Several figures of these are given in the Philo- sophical Transactions. 12. The genus of the ox or beene alone affords several fossil species: the cranium of two were found in Siberia, which have been described by Pallas, who referred one of them to the ordinary buffalo; but he has since attributed them to a peculiar species, natives of Thibet, named anna. Citizen Cuvier proves, by osteologic comparison, that those craniums have not belonged to the buffalo. The other appeared to Pallas to have belonged to the buffalo of the Cape, or the musk ox of Canada. Citizen Cuvier shows that they cannot have belonged to the former; but not being in possession of the cranium of the anna, nor the musk ox, he makes no decision respecting their identity with the fossil craniums.

The author likewise describes two kinds of cranium which have been found in the turf-pits of the department of La Somme, which greatly resemble our common ox, and that of L'Auroiude, but are more than one fourth longer.

From this inquiry the Citizen Cuvier concludes, 1. That it is not true to affirm that the animals of the fourth have formerly lived in the north, of their species not being perfectly identical. 2. That in every country there have lived animals which do not at present exist, either on the same spot, or elsewhere in any known country. Hence he leaves to geologists, the task of making in their systems, such changes or additions as they may think best suited to explain the facts which he has thus established.

Bone is also applied abusively in speaking of other matters which bear some analogy, either in respect of structure or office, to the bones of animals.

In these fensc rocks are sometimes called the bones of the earth. Divers species of figured bones, as the repabiles, carolites &c., are denominated mineral bones, cufola, oles, &e. Some naturalists consider shells as a species of bones. The lobbler, according to Fontenelle, is an animal which carries its bones on its outside.

Bones, Giant, See Giants' bones.
Bones, Mammoth, See Mammoth.
Bone-fire, See Bon-Fire.
Bone-lace, See Lace.
Bone, Hurl, Naper's, Quither, Ring, Shell. See the several articles.

BONETTA Sbeat, lies about N. E. by E. from Bonavista island, one of the Cape de Verde islands, distant from it about 12 or 14 leagues.

BONEZIDA, a town of Transylvania, on the Samos, 12 miles N. of Clujenburgh.

BONTADO, James, in Biography, an eminent Italian scholar of the 16th century, was born at Gorzana, in the Drefian territory, and studied in the university of Padua. From thence he went to Rome, where, for some time, he served the cardinals Merino and Chinkel, as secretary; and after wandering from place to place, he resumed his studies at Padua, where he was probably employed in the instruction of youth. Driving from none of his employments more than a precarioy subilibrium, he was, in 1555, invited to the chair of philosophy, in the city of Genoa, to which he was united the office of historian, with a considerable pension. While he was busily prosecuting his studies, he was charged and convicted of an unnatural crime; beheaded in prison; and his body was publicly burnt in July 1550. As a writer in the Latin and Italian languages, both in prose and verse, he
he excelled; and his translation of Cicero's oration for Milo, is reckoned one of the most elegant pieces of Italian prose which the century affords. His capital work is the "An-

nals of the republic of Genoa," written in Latin, and cop-

prising the history from 1528, where Giustiniani left off, to

February 1530. It was first published at Padua, in 1586, 4to, and translated into Italian by Psichetti. The style is
elegantly simple, the narrative lively, and the sentiments

elevated. His Italian letters and poems were printed at


BONAFATI, in Geography, a town of Italy, in the kingdom

of Naples, and province of Calabria, on three leagues

north of St. Marco.

BONFINI, Anthony, in Biography, was born at Ac-
coli, and after being some years professor of belles-lettres, at

Reccanati, was invited by Matthias Corvinus king of Hun-
gary, in 1454, to his court, where he was employed in

writing the history of the Huns. Here he enjoyed the of-

cice of tutor to the queen, Beatrice of Arragon, and received

many honours from Matthias, and his successor Ladislas.
He died in 1504, aged 75. Of the history of Hungary he left 43

decades, brought down to 1495; of which 3, or 30 books were

printed, by Martin Brener, in 1543, and the remaining 15 books

were added to a new edition by Sambus, in 1568. This work is

written with elegance, and is charged among the best modern histo-

ries in Latin. He also wrote an account of the capture of Belgrade by Maho-

net II., and a work entitled "Symphonia Tragicum, seu
dialogum de fide conjugal et virginitate, lib. iii." He
likewise translated, from the Greek into Latin, the works of Philolaus, Hermogenes, and Herodan. Gen. Dict.

BONGARS, James, a polite scholar and able negotiator,

was born of protestant parents at Orleans in 1551. Having

studied first at Strasburg, and attended a course of law under

Cujacrus, he entered into the service of the king of Navarre,

afterwards Henry IV., by whom he was employed for 30

years in various negotiations, particularly with the German

princes. Being at Rome in 1585, he wrote a severe reply to

the violent bull fulminated by Pope Sixtus V. against

Henry IV.; and he also published a spirited answer to a German

piece, imputing the bad success of the joint expedition in

1587, to the misconduct of the French. He was distin-
guished by his knowledge of books, and had collected a

large library, a great part of which was at length annexed
to the public library of Bors. As a critic he became known by a valuable edition of "Juvenis," Paris, 1581, 8vo. He
also edited a collection of the Hungarian writers, and the
"Gesta Del per Francos." But his reputation was prin-
cipally owing to his Latin letters, written during his nego-
tiations, and published after his death, at Leyden, in 1674, and

afterwards translated into French. The style is clear,

cautious, and polished, and they seem to have been dictated by

an honest heart. A collection of his French letters, "Le

Secretaire fans fard," has also been published. Although

a Calvinist, Bongars disapproved of the religious wars of


BONGO, or Bungo, in Geography, one of the islands

of Japan. The principal town, seated on the coast side of

the island, is called by the same name. This is a port op-

posite to Tonfa, and separated from it only by a narrow

channel. N. lat. 32° 41'. E. long. 131° 57'.

Bongo Palu, in Botany, Pito, See Mystisca aromatica.

Bonguatora, Serpent ornatusia ambienficus bau-

guratae of Seba, in Zoology, the name the Indian abkuta-

beara is called the natives of the island of Ambonya. See

Achatula.

Bonhampton, in Geography, a town of America,
in Middlesex county, and state of New Jersey; about 6
miles N.E. from New Brunswick.

BONI, a kingdom of the island of Celebes, which lies
on the western side of a bay, called on that account the bay
of Boni, is the second kingdom, in point of importance, in
the island. Its extent from the river Chiarmo to the river
Salimico is about 20 leagues; and within land it is bordered
upon Saping, Lamore, Macaffer, and Boshooche. In

ancient times this kingdom was independent of, and uncon-

nected with any other. It is still in close alliance with the
two small kingdoms of Saping and Looboe, or Looboe. The
natives of Boni, that they may not appear inferior to the
Macaffers, declare their origin in like manner from the
gods. The first king they lay, descended from heaven, and was

known by the name of "Matuu Salompo," that is, the

all-seeing. This sovereign, their first monarch, inflated the
laws of the country, which are still observed; made the
royal standard, called "Worong Porong," and appointed
seven electors, under the denomination of "Matuu potees."

The prince or sovereign is called "pajong," and he is elected
for life by seven nobles, which number is kept up by the
pajong, and they are appointed by him from certain free-

holders. The pajong is often restrained by a sort of par-

timent, elected by the freedholders; it consists of 400

members, 200 of which are called "matun," 100 are called
"pajong," and 100 are called "galangan." The first

sovereign, after reigning 50 years, resigned the kingdom to

his son, and, with his wife, ascended again to heaven; and

from him all the succeeding kings of Boni are descended

none others, besides his posterity, born of marriages with

royal princes, being entitled to the crown. Notwith-

standing the common deception of the rulers of Boni and Ma-
caffer from the gods, these two nations are arrowed enemies.

About the beginning of the 17th century the Bouguine,
or people of Boni, and their queen, were compelled to con-

form to the mahometan religion; and the condition imposed upon

them was, that the enemies of Macaffer should likewise be the

enemies of Boni, but not the enemies of Boni themselves.

At this time Boni was able to bring 70,000 fighting men

into the field. The hatred which was thus excited among the

Bouguine against the Macaffers, and their incessant quar-

rels, enabled the Dutch, who, as their interest required,

favoured sometimes the one party, and sometimes the other,

to make themselves masters of the island. The princes of

Boni, Saping, &c. united themselves to the Dutch by the

Boni contract, which was concluded November 18th, 1667;

and to this the Macaffers were afterwards compelled to

accede. At present the Bouguine are the most powerful, as

the Macaffers were about a century ago.

The Bouguine, or Buggefes as they are usually called by

the English, are of a middle size, and have a brown, but not
dark, complexion. Among the female sex in particular,
some are found almost entirely fair. Their features in gen-

eral are agreeable, only that their nose is a little flattened.

They are as open and more treacherous in their dispositions

than the Macaffers; and never attack their enemies openly,

but endeavour to fall upon them by surprise. Those who

never did them an injury are not feart from being murdered

by them, when they can do it with secrecy; and they often

commit such actions for no other reason, as the wish to

try the goodness of their knives, or daggers. Many Ma-
caffers, as well as Europeans, have fallen sacrifice to this

thirst for blood. Their daggers and affagays are com-

monly poisoned, as well as their small darts, which they can

flint at their enemies to a considerable distance by blowing

them through a tube. Their clothing consists of a piece of red

or blue cotton cloth wrapped round the body, and drawn

between
between the legs. The upper part of the body is quite naked. On the head they wear a piece of cotton cloth in the form of a handkerchief, with which they cover their hair, which is as black as pitch, and very long. On the other parts of the body, neither the men nor women suffer any hair to grow; they pull it out by the roots, in the same manner as the Mahometans and Indians do, as soon as it appears. The food is chiefly rice, fish, and piainguas; and their beverage is water, though they are not deftive of "faqueroc, or palm wine. The Bonginefe women are in general much handsomer than those of the other Indian tribes; some of them, if their complexion had the same mixture of red and white as our females, would be accounted beauties in Europe. They are naturally of an amorous disposition, and are capable of undertaking any thing to gratify their inclinations. The Bonginefe, who have in general adopted the mahometan religion, may have four wives, provided the husband can maintain them; but if they are not satisfied with each other, they may separate with as little trouble as they were united. They are a high spirited people, fond of adventures and emigration, and capable of undertaking the most dangerous enterprises. The appellation "Bonguefe," has become, among Europeans in the east of India, synonymous with soldier, just as feapoy is in the west. The people of Celebes are very industrious, and they are very adventurous merchants; and the Bonguefe, in particular, often find their way to the spice islands, in spite of the vigilance of the Dutch. They write their language from left to right, in a character peculiar to themselves; on the sea-coast they universally speak the Malay tongue, and have many Malay phrases in their own language.

There are frequent earthquakes in the neighborhood, and the body is wrapped up in a piece of white cotton cloth, and deposited in the grave, over which some sweet scented flowers are strewn, and two fones are erected, one at the head and another at the feet. Stavorinus's Voyage to the East Indies, vol. ii.

**Boni**, bay of; a bay in the kingdom of Boni, in the southern part of the island of Celebes. It is called Sewa by the natives, and Bugguefs, or long bay, by the English. Of this bay we have the following account by Captain Forrest. Having paddled the lraft between Celebes and Suleyer, called the "Budgeeroons," keep on in a direction N.E. by N. about 130 miles, and you will find, near the west coast of the Sewa, a small island called "Balooonoo," visible 8 or 10 leagues off, and having some rocky iflets at its east end. Farther on, about a day's sail, or about 60 miles, is the mouth of the river Chimana, which takes its rise in the Warjoo country, the capital of which is Tolorro, lying a day's journey by water from the mouth of the river; it afterwards passes through Boni; it has a good muddy bar, passable by large frigates, and is navigable a good way up; it has several mouths, and on its banks are many towns, which carry on a great trade in gold, rice, fago, caffia, tortofehell, pearls, &c. The anchorage is good off the river's mouth. Half a day's sail farther north, along the west coast of the Sewa, is the river Poonekee, which is not very considerable. Farther on are two places called Akoligan and Telludopin, which are pretty well inhabited. Continuing still north, you come to the river Sewa, not very considerable; then to the river Loo, famous for boat-building; then you come to Mankskoo, where gold are plentiful of fago, very cheap, and also caffia and feed-pearl. Being now come to the bottom of "Bugguefs bay," the fago-tree abounds very much; and in many parts of the Sewa, there are spots of foul ground, on which they fish for swallow, which they generally carry to Macaofer, to sell to the China junk. On the east side of the Sewa the country is not so well inhabited as on the west side. The fourth-east point of the Sewa is called "Pajugan;" where is a cluster of islands, rather small, among which is good anchorage. Stavorinus's Voyage, vol. ii. p. 213.

**Boneux**, a town of France, in the department of the Vauches, and chief place of a canton, in the district of the Apt. The place contains 2,550, and the canton 67,786 inhabitants; the territory comprehends 150,000 square meters, and 6 communes; 8 leagues E. of Avignon.

**Bonacci**, in Biography. There are nine popes of this name. Boniface I. succeeded Zolimius in the year 418; and when the felurn, occasioned by a part of his subjects, terminated, he was fully established in possession of the papal see in 419. Before his election he was a prebendar of irreproachable character, and after his advancement he was a lover of peace; and though he maintained what he called the just rights of the Roman see, in the jurisdiction which his predecessor had exercised over the bishops of Illyricum, he made no attempt to extend his authority and claims. He revoked the privileges granted by Zolimius to the see of Arles, and restored them to the sees of Narbonne and Vienne, which had been unjustly deprived of them; and with a moderation which redounds much to his honour, he refused to interfere in a dispute which took place between the clergy of Valence and Maximus, their bishop. He died at a very advanced age, November 4, 422; was canonized as a saint in the church of Rome; and his festival was kept on the 25th of October. Bede gives credit to the relation of miracles wrought by this pope, and Baronius (ad ann. 423) says, that he relieved Rome in the time of a famine.

**Boniface II.**, a Roman by birth, and a Goth by descent, supplied the vacancy occasioned by the death of Felix III. in 520; and upon the death of a competitor, named Dioecorus, obtained quiet possession of the papal chair. This pope confirmed the decrees of some Gallican bishops, who condemned the femipelagian doctrine; and in 531 he proposed to alter the mode of electing a pope, and to assume the prerogative of appointing his successor. He obtained a decree for this purpose, and actually nominated a deacon, whose name was Viglius. But at a second council the Roman senate, in concurrence with the bishops and clergy, obliged the pope to revoke his former decree, and to acknowledge himself guilty of high treason. Boniface died in October, 532.

**Boniface III.**, a native of Rome, succeeded Sabianus, after a vacancy of almost a year, in 607; and having ingratiated himself with the emperor Phocas, to whom he was deputed as a nuncio by pope Gregory, in 603, he obtained from this tyrant the title of "universal bishop," and "head of the church," which was taken from the bishop of Constantinople, and transferred to Boniface and his successors in the see of Rome. Thus, says Bover, was the power of the pope, as universal bishop and head of the church, or in other words, the papal "supremacy," first introduced. It owed its original to the work of men; it was procured by the bafest means, or by flattering a tyrant in his wickedness and tyranny; and according to the previously declared judgment of Gregory the great, it was in itself "anti-christian, rhetirical, blasphematic, and diabolical." Boniface afterwards assembled a council for settling the election of bishops, in which they were forbidden to nominate their own successors, and the content of the people, clergy, and sovereigns, and the confirmation of the pope, were made necessary. Boniface died in November 607.

**Boniface IV.**, a native of Valeria, in the country of the Mark,
BONIFACE.

Marl, was elected to the papal see in August 6:8; and having obtained from Phocas the grant of the pantheon, converted it into a church, dedicating it to the Mother of God and the Christian Martyrs. He held a council at Rome to settle some affairs of the English church, at which Mellitus, the first bishop of London, is said, by Bede, to have attended; but the acts of this council, and some pieces ascribed to Boniface, are thought to be spurious. He died in 615, and was sanctified.

Boniface V., a native of Campania, and a prebend of the Roman church, succeeded Deudedit in December 619. In 624 he sent the nuncius, the successor of Mellitus in the see of Canterbury, and interested himself in the propagation of Christianity in Britain, by sending letters and presents to Edwin the king of Northumberland, and also to his queen Edelberga, sister of Eadbald king of Kent, who having assumed the Christian profession, was allowed by her marriage articles the free exercise of it. He died in October 625. Some decretal epistles, relating to matters of small importance, are ascribed to him. According to Mósthein (Ecc. Hist. vol. ii. p. 185), this Boniface enacted that infamous law, by which the churches became places of refuge to all who fled thither for protection; a law which procured a fort of impunity to the most enormous crimes, and gave a loose rein to the licentiousness of the most abandoned prelates.

Boniface VI., was a Roman of infamous character, and succeeded Formosus in 856. Baronius (ad ann. 897) will not allow him a place among the popes. He died soon after his election.

Boniface VII., denounced "Anti-pope," was a deacon of the Roman church, of the name of France, and advanced to the papal chair in 975, upon the death of Benedict VI. to whose murder he is said to have contributed. Soon after his election he was constrained by an adverse party to leave Rome and to fly to Conflantinople; but he carried with him the treasures of St. Peter. Gerbert styles him "of all monarchs of wickedness the most wicked." Upon the death of the emperor Otho II. in 984, he returned to Rome, and occupied the see in the room of John XIV. whom he displaced, imprisoned, and put to death. Franco died in 985; and he had rendered himself odious by his tyrannical conduct, that his corpse was treated with the utmost indignity, and dragged naked through the streets.

Boniface VIII., a native of Anagni, and a descendent of the noble family of Cajetani, was employed by popes Martin IV. and Nicholas IV. in several important legations, and succeeded pope Celestine V., whom he artfully prevailed to resign, in December 1294. The beginning of the following year he was enthroned at Rome with great solemnity and parade; in the procession from St. Peter's, where he was consecrated and crowned, to the Lateran, for the purpose of being enthroned, he was mounted on a white horse, richly caparisoned, with the crown on his head, whilst the king of Apulia held the bridle in his right hand, and the king of Hungary in the left, both on foot. His subsequent conduct corresponded to the haughty grandeur of his installation. In order to secure himself against any future trouble from Celestine, he confined him in prison at Anagni, where he died. Failing to mediate a peace between James king of Aragon, and Charles II. king of Sicily, he formed an alliance against Frederic of Aragon, whom the Sicilians had made their king, and proceeded to excommuniucate him and all his adherents; but he was at length obliged to confirm him in his dominions. His next measure was that of humbling the family of Colonna, two cardinals of which had opposed his election; for this purpose, after having declared the whole family infamous by a public decree, confiscating their estates, and excommunicating all who countenanced or protected them, he ordered a crusade to be preached against them and their friends, demolished their houses and castles, and obliged them to seek shelter in foreign countries; and he moreover punished with utter demilitization the city of Prezelle, for its attachment to them. To Boniface is commonly ascribed the institution of the jubilee in 1300. See JUBILEE. In his attempts to mediate a peace between Philip the Fair, king of France, and Edward I. king of England, he was charged with partiality to the latter, so that Philip could be prevailed on merely to agree upon a truce; and his enmity against Boniface, which was fomented for some time, at length broke out into a flame. Philip, with a view of supporting the war against England, prohibited the exportation of any gold or silver from the kingdom without his permission; and Boniface, apprized that this order was levelled against the see of Rome, invaded a bull, forbidding ecclesiastical princes to exact, and the clergy to pay, any sums from the ecclesiastical revenues, without his approbation. The animosity between the pope and the French potentate was increased by the arrogance with which a legate from Rome delivered the pope's message, enjoining the king of France, in common with other Christian princes, to aid the king of Tartary in a war against the Saracens, and by the subsequent arrest of the legate. Boniface, much enraged, dispatched a nuncio to demand his release; and in case of refusal, threatened to declare the kingdom devoted to the holy see, to abrogate its subjects from their allegiance, and to foment all the Gallican bishops to Rome. The king resented this violent proceeding, renewed the prohibition against carrying money out of the kingdom, and forbade his ecclesiastics on any pretence to visit Rome. In these hostile measures the king was supported by the states of the nation, which appealed to a general council, and Boniface prepared to fulminate a decree of excommunication and forfeiture of his crown against Philip. Nogaret and Sciarra Colonna were sent, on this occasion, into Italy to excite the perfecuted Chilubines against the pope, who was then at his palace in Anagni. They fearfully approached it with a body of troops, and made themselves masters of the see of Boniface and all his treasures. During the three days of his confinement the pope was treated with great indignity, particularly by Colonna. At length the people of Anagni, recovering from their confusion, rescued the pope from his captivity; who returned to Rome, where he was feized with a fever, which terminated his life in October 1303. He was buried at St. Peter's in a grand mausoleum, which he had erected for himself. Although Boniface has been justly extolled for his learning, intrepidity, and experience in public affairs, and for his patronage of literature; he was arrogant and overbearing, ambitious, crafty, and violent, and avaricious to such a degree, that he was intent upon accumulating riches to exalt the church and aggrandize his own relations. He was the author of several works, such as epistles and decrees, two discourses on the canonization of Lewis IX. of France, called St. Lewis; two famous prayers, one to our Saviour, and the other to the Virgin. He also caused to be published the sixth book of the decretals, and wrote a treatise entitled "De regulis juris."
in which were displayed on both sides much cunning and artifice, and at the same time an inflexible resolution of retaining the tiara. Boniface was arbitrary in the exercise of power, and towards the end of the year 1234 he would have been massacred by the people, if he had not been fearfully rescued from the enraged multitude by the interposition of Ladislaus, king of Naples, who happened to be then at Rome. He afterwards retired to Perugia, and from thence he removed to Afflit; but on the approach of the jubilee year, 1249, the Roman people, apprehending, that in the absence of the pope it would not be celebrated with the usual solemnity, and the pecuniary interests affected, deputed an embassy to invite his holiness to Rome. Upon his arrival he was received with joy and invoked with extraordinary powers, in the exercise of which he repaired and fortified the walls and towers of the city, and the castle of Angelo, and also placed garrisons in them, so that he made himself absolute master of the city. Some ascribe to Boniface the institution of Annates (See Annates); but though the origin of these is of more ancient date, he is allowed to have been in a very high degree avaricious and rapacious, to have sold church prelomates to the bidder, without regard to merit or learning, and to have made it his constant study to enrich his family and relations. He died of a paroxysm of the stone in 1244. Bower's Hist. of the Popes.

Boniface, called the "Apostle of the Germans," was a native of England, whose original name was "Winifred," born in Devonshire, A.D. 670, and was educated in a Benedictine monastery at Exeter. This famous ecclesiastic, who was ordained a priest A.D. 700, with two companions, sailed over into Friesland in 723, in order to preach the gospel among the heathens; but failing in his first attempt, on account of a war which broke out between Radbod, the king of that country, and Charles Martel, he returned to England. However, he returned his pious undertaking in 718; and at Rome he was solemnly empowered by the Roman pontiff, Gregory II., to preach the gospel not only in Friesland, but throughout Germany; which commission he executed with considerable success. In the year 723, he was consecrated bishop by Gregory II., who changed his name of Winifred into that of Boniface; and he is said to have been the first who took a solemn oath of obedience to the pope, which he did at this time. Upon his return to Germany, with the instructions of the pope, and the peculiar protection of Charles Martel, he preached in Thuringia, Hessia, and Bavaria, and erected a great number of Christian churches. As these were too numerous to be governed by one bishop, this prelate was advanced to the dignity of archbishop, in 732, by Gregory III., under whose authority, and the auspicious protection of Carolman and Pepin, the sons of Charles Martel, he founded in Germany the bishopric of Worms, Bamberg, Erfurt, and Aichlaft; to which he added, in 744, the famous monastery of Fulda. His laud promotion, and the lait recompense of his affiduous labours in the propagation of the truth, was his advancement to the archiepiscopal see of Mentz, A.D. 746, by pope Zachary, by whom he was at the same time created prince of Germany and Belgium. In his old age he returned again to Friesland, that he might finish his ministry in the scene of his commencement; but his piety and zeal were rewarded by that barbarous and treacherous murder, by whom he was murdered in 754, together with fifty ecclesiastics who accompanied him, and who shared the same fate. He was interred in the abbey of Fulda, and canonized by the church of Rome, to which he was ardently devoted. His zeal for the glory and authority of the Roman pontiff equalled, if it did not surpass, his solicitude for the service of Christ, and the propagation of his religion; and in combating the heathen superstitions, he recurred to other weapons than those which Christianity recommended, employing violence and terror, and sometimes artifice and fraud, in order to multiply the number of Christians. His epistles, and those of his coadjutors, first published with notes by Serrarius, in 1625, and republished in 1629, are written in a barbarous style, and discover an impious arrogant temper, a cunning and insidious turn of mind, an exulting zeal for increasing the honours and pretensions of the secular order, and a profound ignorance of many things, the knowledge of which was indispensably necessary in an apostle, and particularly of the true nature and genius of the Christian Religion. The Benedictines have published his statutes, and some of his sermons. Bower's Hist. of the Popes, vol. iii. Mofheim's Eccl. Hist. vol. ii. p. 205, &c. Cave's Hist. Lit. t. l. p. 622. Dupin, Eccl. Hist. cont. 8.

Boniface, count of the Roman empire, one of the two being other (see Aetius), who have been severally named as the last of the Romans; was the intimate friend of St. Augustine, bishop of Hippo, but incurred his displeasure by marrying a wife of the Arian sect, after a solemn vow of chastity, and a resolution of retiring from the world, and by some other inculcations of licentious conduct with which he was charged. However the people applauded his spottles integrity and the army dreaded his impartial and inexorable justice. Of his justice, the following singular fact is recorded. A peasant, who complained of the criminal intimacy between his wife and a Gothic foal, was directed to attend the tribunal the following day; in the evening, the count, who had diligently informed himself of the time and place of the afflication, mounted his horse, rode ten miles into the country, surprised the guilty couple, punished the foal, with instant death, and silenced the complaints of the husband by presenting him, next morning, with the head of the adulterer. Boniface, having defended Marselles, when attacked by Ataulphus, was rewarded by the emperor Honorius with the command of the troops in Africa, which province he refused from the repeated attempts of John, who usurped the empire. Placidus, who coveted the government of the empire during the minority of her son, highly pleased with his bravery and loyalty, called him to court upon the death of that usurper, preferred him to the post of "comes domesticorum," and sent him into Africa with unlimited power. These marks of favour excited the jealousy of Aetius (see Aetius), who artfully contrived, under the mask of friendship, to engage Boniface in a revolt, which took place in 427. Accordingly, Placidus declared him a public enemy, and sent troops against him. Having defended himself for some time, he found at length that he was likely to be overpowered; and therefore, after some hesitation, the last struggle of prowess and loyalty, he dispersed a truly friendly to the camp of Gonderic, king of the Vandals, with the proposal of a truce alliance, and the offer of an advantageous and perpetual settlement. The Vandals accepted the proposal, and Genericus, who succeeded his brother, and whose ambition had neither bounds nor cepules, transported his troops from Spain into Africa in 429, and obtained, by the concurrence of several favourable circumstances, an easy conquest. Placidus discovered, when it was too late, the artifice that had been practised by Aetius; and Boniface, who also perceived and lamented his error, returned to his allegiance. But his efforts to recover Africa were unavailing; and he was under a necessity of abandoning the country, and of returning to Ravenna, where
where he was kindly received by Placidia, and advanced to the rank of patrician, and the dignity of maior-general of the Roman armies. The haughty and perfidious soul of Actius was exasperated by the honourable mode of his reception, and he hardened in return from Gaul to Italy, with an army of Barbarian followers, and to decide his quarrel with Boniface in a bloody battle. Boniface was successful; but in the conflict he received a wound from the spear of his adversary, of which he expired within a few days, A.D. 433. Before his death he is said to have testified his forgiveness of Actius's treacherous conduct, to such a degree, as to exhort his wife, a rich heiress of Spain, to accept him for her second husband. Anc. Us. Hist. vol. xiv. Gibbon's Hist. &c. vol. vi.

Boniface, Natalis, an engraver of great merit, who flourished in Italy, towards the conclusion of the 16th century. His works are chiefly etchings, performed in a fine style; and his small figures he executed with great spirit. His chief work was the plates composed by D. Fontana, architect to pope Sixtus V. concerning the removal of the Vatican obelisks. Strutt.

Bonifacio, in Botany (J. Bauhin). See Rhuscus racemosus.

Bonifacio, or Bonfacio, in Geography, a seaport town of the island of Corsica, department of Limeudone, and chief place of a canton, in the district of Sartene, on the south coast, and in the rift between the islands of Sardinia and Corsica. The town is small and fortified, and the canton contains 3,172 inhabitants; 28 leagues south of Lautia. N. lat. 41° 24′. E. long. 9° 2′.

Bonifacio Point. See Baldovia.

Bonifacio Strait, commences near the town of the same name, on the S. E. of the island of Corsica; and its length to point Tico, the most northerly point of Sardinia, is 23 leagues.

Bonning, in Surveying and Levelling, &c. is the placing of three or more rods or poles, all of the same length, in or upon the ground, in such a manner, that the tops of them all may be in one continued straight line, whether it be horizontal or inclined, so that the eye may look along the tops of them all, from one end of the line to the other.

Bonjour, William, in Biography, a learned Augustinian, was born at Toulouse in 1670; and at Rome, whether he was sent for by cardinal Norris in 1693, he became distingued by his learning and piety. He was employed by pope Clement XI. in several matters of importance, and particularly in the examination of the Gregorian calendar. Bonjour had also the superintendence of the seminary established by cardinal Barbingh at Montefalco, and nominated the Academy of Sacred Letters. He was acquainted with almost all the oriental tongues, and more especially with the Coptic, or ancient Egyptian. Aflinated by a zeal for acquiring knowledge, and for propagating the gospel, he visited China, where he died in 1714, whilst he was employed in forming a map of that empire. His works are, "Select Dissertations on the Scriptures!" "An Account of the Coptic MSS. in the Vatican;" "A Coptic Grammar;" and "A Roman Calendar." Moreri.

Bonis arrestandi ne dissipetur. See Arrestandi.

Bonis non amph_sp. a writ directed to the sheriffs of London, &c. where a writ of error is brought, to charge them that the person against whom judgment is obtained be not suffered to remove his goods, till the error is tried and determined.

Bonis, terris, et catalis robabundia post fugationem. See Terris.

Arresto stato super Bonis mercatorum. See Arresto.

Bonito, in Ichthyology, synonymous with the French bonite. This appears to be a name alluded indifferently to more than one or two kinds of fishes, although it seems to be confined in form: degree to those of the Scophenius genus.

The bonite pelvis of Locell, is the fish mentioned under the name of bonito by Olbeck, who also calls it boniter pellicer. The bonito is vaguely described as a large sea-fish, with a long, broad, and thick body; eyes, and likewise the gills, large; and the greater part of the body free from scales. It is observed still further to be a fish of great beauty, and very common in some seas; our East India ships usually falling is with immense shoals of them. It is impossible to say whether this may be the boniter pelvis, or not; but as a matter of opinion, we think it to be the same, because the latter is found in immense shoals between the tropics, and in the Atlantic ocean. The bonito of Black (le bonite de Black) bears the Latin name of boniter pellicer.

Bonifacius, the common French name of Scombro amia of Linnaeus.

Bonizo, in Geography, a town of Italy, in the duchy of Mantua, on the south side of the Po, opposite to Olgina.

Bonkose, in Ichthyology, the Scilena arborifera, a fish discovered by Forith in the Red sea. Bonkose is the name it bears in Arabia.

Bonlieu, in Geography, a town of France, in the department of the Ardeche; 5 leagues N. N. W. of Touron.

Bonn, in Latin Bonum, a small but populous and fortified city of Germany, in the circle of the Lower Rhine, and electorate of Cologne, or, according to the French arrangement, the chief place of a district, in the department of the Rhine and Moselle; the place contains 8837; and the canton 18,951 inhabitants; and its number of communis is 51. The number of houses is said not to exceed a thousand; and as it has little foreign trade, most of the inhabitants are attracted thither by its being the residence of the elector of Cologne. The streets are narrow, crooked, dirty, and badly paved, and in winter badly lighted. The public walks are few, and not very agreeable. The churches are flat; and the town-hall is adorned with fine paintings. The Jews at Bonn have a house to themselves, consisting of 21 houses; and their number is estimated at 250. Bonn was taken from Louis XIV. into whole hands it was surrendered by the elector, in 1673, by William prince of Orange; in 1689, by the marquis of Brandenburgh; in 1703, by a detachment of the duke of Marlborough's army, after a siege of three weeks, and the loss on both sides of 2000 men; and on the 6th of October, 1794, by the troops of the French republic. It is situated 14 miles S. E. of Cologne, 30 E. of Aix-la-Chapelle. and 28 N. N. W. of Coblenz. N. lat. 50° 40′. E. long. 7°.

Bonna, in Zoology, synonymous with Bonasus; which see.

Bonnaghit, or Bonnagh, an old term, which occurs frequently in Irish history, and was the same with coin and ivury; being a certain proportion of meat, drink, and money for the maintenance of a soldier, and sometimes free quarter. Hollinghead speaks of it as an Irish imposition, which beggared the farmers; and Sir John Davis, the eminent attorney-general of Ireland in the reign of James I. in his justly admired tract, entitled "A Discovery of the Caules, why Ireland was never subdued," has these words: "But the most wicked and mischiefous custom of all others, was that of coin and ivury, which confild in taking of man's meat, horse meat, and money, of all the inhabitants of.
of the country, at the will and pleasure of the soldier, who, as the phrase of the Scripture is, did eat up the people, as it were bread, for that he had no other entertainment. This extortion was originally Irish, for they used to lay bonnights upon their people, and never gave their soldiers any other pay. But when the English had learned it, they used it with more inefence, and made it more intolerable; for this oppression was not temporary, nor limited either to place or time, but because there was everywhere a continual war, either offensive or defensive, and every lord of a country, and every marcher, made war and peace at his pleasure, it became universal and perpetual, and was indeed the most heavy oppression that ever was used in any Christian or Heathen kingdom." The curious reader will do well to consult the whole passage in Sir J. Davis's Historical Tracts, p. 132, et seq. of the edition printed in 8vo. Dublin, 1757. This practice was forbidden by the statute of Kilkenny passed in 1450, and by several succeeding acts, in one of which (under Henry VII.) it is called a damaunble eflau, Spencer, in his "View of the State of Ireland," seems, however, to think the statute unnecessarily severe in making it treason. Hollinghead, Irish Statutes. Spencer's State of Ireland.

BONNART, JOHN, in Biography, barber-surgeon, and master of the college of Surgeons at Paris, published, in 1629, "La Semaine des medecins observée, et chefs d'oeuvres des maistres barbiers chirurgiens de Paris," 8vo. It contains a course of study necessary for young men previous to their being elected into the college, with observations on the method of treating such complaints as come under their care. The author strongly recommends opening the jugular vein in cases of quinsey. "Methode pour bien feigner les accideus qui arrive pour etre mal fait," 8vo. 1628. Haller Bib. Med. Eloy.

BONNAT, in Geography, a town of France, and chief place of a canton, in the department of the Creuse, and district of Gueret; the place contains 2032, and the canton 16,824 inhabitants; the territory comprehends 2575 kilometres, and 12 communes.

BONNAD, in Biography, published, in 1770, "Degradation de l'epice humaine par l'ulige des corps de baleine," 12mo. Paris. In this very sensible and ingenious little work, the author forcibly represents the various evils consequent on using oils distilled with whale-bone: these are indigestion, and other disorders of the stomach, ruptures, and difficult respiration, often terminating in consumptions; besides, they are unfrequently occasion deformity of the body, which they are supposed by their admirers to contribute in preserving. Haller Bib. Med.

BONNAY, in Geography, a town of France, in the department of the Doubs, and chief place of a canton, in the district of Besançon, 2 leagues N. of Besançon.

BONNE, a town of Savoy, in the Lower Faunegny, 10 miles E. S. E. of Geneva. N. lat. 46° 11'. E. long. 6° 7'.

BONNE, a bay on the west coast of Newfoundland. N. lat. 49° 35'. W. long. 53°. - Also, a bay on the coast of Spain in the Mediterranean, nearly east from Malaga. N. lat. 36° 42'. W. long. 2° 40'.

BONEBOSQ, a town of France, in the department of the Calvados, and chief place of a canton, in the district of Pont-l'Evêque, 2 leagues S. W. of Pont-l'Evêque.

BONNEFONS, JOHN, or BONNEFONIUS, in Biography, was born, in 1544, at Clermont in Auvergne, became an advocate in Paris, and, in 1584, lieutenant-general at Barfurl-Seine, and died in 1614. He was distinguished as a Latin poet, and particularly by that kind of poetry, which is the short verse of Catullus, abounding with diminutives and tender expressions. Of this kind is the piece entitled "Pancharhis," which is reckoned the most elegant performance of any modern writer. It seems to have been the aim of Bonnefons to imitate Johannes Secundus, the celebrated author of the Bafs; and his resemblance, with regard to hislsues and sweetness, has approached the extreme of fictitiousness and effeminacy. His poems in heroic verse have also been esteemed. The Pancharhis was published at Paris in 1588, and translated into French by La Bergerie; and all the poems of Bonnefons are printed after those of Bocc, in Burbon's edition of the latter, Paris, 1577. There are London editions in 1620 and 1727. A son of Bonnefons distinguished himself by Latin poetry, chiefly written on public characters and events. Novi. Dict. Hist.

BONNER, EDMUND, an English prelate of detectable memory as a percursor of Protessants, was born, as it is generally believed, of poor parents at Hanley, in Worcestershire; but some have affirmed that he was the natural son of George Savage, rector of Davenham, in Cheshire. About the year 1512, he was admitted a student of Broadgate hall (now Pembroke college) in the university of Oxford, famous at that time for the education of civilians and canonists. In 1519, he took his degrees of bachelor of the canon, and bachelor of the civil law; and about the same time entered into holy orders. In 1525, he was created doctor of the canon law. More distinguished by his talents for business than for his learning, he was appointed commissary of the faculties by cardinal Wolsey, who conferred upon him a plurality of ecclesiastical benefices. After the cardinal's death, he continued to intrigue himself into the favour of king Henry VIII., and became a zealous promoter of the reformation, as well as an advocate for the king's divorce from Queen Catharine, and a frequent supporter of the causes that were adopted for abolishing the pope's supremacy in this kingdom. He was also patronized by Cromwell, secretary of state, and employed as ambassador at several courts. In 1532, he was deputed on an embassy to Rome, to secure the king's appearance to a citation at that court; and in 1538, he was sent to pope Clement VII., then at Marceilles, to deliver the king's appeal from the pope to the next general council against his excommunication; and on this occasion he exposed himself by his boldness and indomitable warmth to personal danger. He was likewise employed in other embassies to the kings of Denmark and France, and to the emperor of Germany. Being recalled from France in 1538, on account of the boldness with which he remonstrated against the protection afforded to an English traitor, he was nominated to the bishopric of Hereford, and, before his consecration, translated to the see of London in 1539. At the time of the king's death in 1547, he was ambassador at the court of Charles V. Till this time he appears to have concurred in promoting the reformation; and by the subversion of his principles to his interest, as well as by his capacity for public business, he secured the favour and confidence of his tyrannical master. But from his subsequent conduct it is evident that he was secretly attached to the Roman religion; for soon after the accession of Edward VI., he ventured to take the oath that was required for renouncing the pope's authority; and he protected against the king's injunctions and humilies, which, however, he had never read. But being committed to prison for disobedience, he afterwards recanted, and was released. Whilst he outwardly professed zeal for the reformation, he privately used all the means in his power for obstructing its progress and establishment. His conduct warranted the suspicions that were entertained of his sincerity; and in order to bring it to a test, he
he was ordered by the privy council to preach at St. Paul's
crofs on certain articles; connected with the principles of
the reformation; and given to him in writing. But he per-
formed this service in a manner so unsatisfactorily, that, upon
the complaints of Hooper and Latham, commissioners were
appointed to proceed sumamrly against him; the result of
which was, that he was committed to prison, and deprived
of his bisholpice. These proceedings, allowed even by his
enemies to be arbitrary and severe, roused his resentment;
nor was he long obliged to wait for an opportunity of ample
recantation. Upon the accesion of Mary to the throne, he
was restored to his bisholpice, by a commission dated August
1553; and in the convocation of the following year, he was
appointed presnt in the room of Cranmer, who was com-
titted to the tower. In this year he visited his diocese,
and industriously rooted up all the seeds of the reformation.
In the four succeeding years he was an active and savage per-
fector; and he is said to have committed to the flames
200 persons, who avowed their firm adherence to the
protestant religion; and who refused to embrace the gross errors
of popery, besides imprisoning and torturing many more.
Bonner's detraction was in the highest degree cruel and
ferocious; and religious bigotry, grafted on a temper natu-
ral savagely, rendered him a fit instrument to be employed by
the artful Gardiner in the condemnation and execution of
heretics. But though his nature did not seem to recoil at
this savage employment, he dreaded the incensed odium that attended it, and refuld any longer to be the executioner
of the laws. However, in 1556, he concurred in the
degradation of Cranmer, and enjoyed the malignant pleasure
of triumphing over him with his usual incoherence. In the
following year his name was infected in a kind of inquisitorial
commission for searching after, and punishing all heretics, as
all persons who were of the protestant religion were then
denominated. Upon the accession of Elizabeth, he had
the onerous and difficult task to accompany the other bishops in their progress for meeting her at Highland; but he looked upon him
with feelings of just indignation and horror, as a man pol-
luted with blood. He remained for some months un-
 molested; but in May 1559, he was summoned before the
privy council; and refusing to take the oaths of allegiance
and supremacy that were tendered to him, he was deprived
of his bisholpice, and committed to prison. In this state of
imprisonment he remained for some years, bearing his reverse
with condition with a degree of cheerfulness which might have
become a better man, and occasionally warding off, by keen
and humourous repartees, the popular insults that were offered
him. He died in prison, September 5, 1560; and was
buried at midnight in St. George's church-yard, Southwark,
lest any indignities should be offered to his remains by the
incensed populace. Bonner was singularly savage in his
natural temper, blustering and profane in his conversation
and manners, furious and violent in his conduct, grofs and
corrupt in his person, and in every respect fitted for the
part he acted, as an uncultivated and brutal persecutor.
Hewas generally regarded as the true of any fixed principles;
and he has been charged even with Arianism. As a canonist
and politician he was allowed to excel; but his knowledge
of divinity was very imperfect, and he had no reputation for
learning. However, several pieces, theological, controver-
sial, and pastoral, were published under his name. By his
interest with queen Mary, he obtained several advantages for
the see of London, which his successors have enjoyed. Biog.
Bnt.

BONNET, Charles, an eminent natural philosopher,
was born at Geneva in 1720, and educated under a domestic
tutor, whom his father provided for him, as attending lice-
rior advantages to those which he enjoyed in any of the public
schools. At the early age of 16, he discovered that pecu-
liar inclination of his mind, which led him to those studies
that laid the foundation of his future fame and excellence.
From the perusal of the Spectacle de la Nature, he was in-
duced to direct his particular attention to the structure and
manners of the ant-hill, and added many curious observa-
tions relating to it, to the facts that had been previously
collected by Meff. Poupart and Reaumur; and he was fur-
ther led by the Memoirs on Insects, published by the latter,
to repeat many of his experiments, to discover new
facts, which indicated in a youth of 18, a degree of sagacity
and research that surpassed and gratified this eminent
naturalist, by whom he was encouraged to proceed. The
interesting observations which he made on different species
of caterpillars, and other insects, in the years 1738 and 1739,
were communicated by him to Reaumur. His father had
defined him to the profession of the law; but the study of
natural history was his chosen and favourite employment.
Having, in 1740, decided a question that had been left un-
settled by Reaumur, respecting the multiplication of cree-
se, or aphides, without actual conjunction, he communi-
cated a paper on this subject to the Academy of Sciences
at Paris, and in consequence of it, he had the honour of be-
coming a correspondent of that illustrious body. His eye-
fight was irremediably injured by the minuteness of his re-
searches on the generation of these animals. In 1741, he
found that many species of worms poiffed, in a degree, the
reproductive power of the pupae; and in 1742, he dis-
covered that the respiration of caterpillars and butter-
flies, was effected by means of their pores called "Sigmata."
The tarantula, or tape-worm, was also a subject of his succes-
sful investigation. In 1743, he was advanced to the rank of
doctor of laws, and on this occasion he totally abandoned
the profession of the law. A paper on insects, which was
this year communicated to the Royal Society of London, ob-
tained for him the honour of being elected a member. His ob-
servations on aphides and worms, under the title of " Insecto-
yology," were published in 1744; and this work was intro-
duced with a preface, in which he gave a brief sketch of his
ideas concerning the development of germs, and the scale
of organized beings. This work was very favourably received
by the public; but such had been the nature of his re-
sarches and the affinity of his application, that his eyes
and his health failed him; and he was reduced to the dis-
tressing necessity of laying aside his microscope, and of
deferring from reading and writing. This self-denial, pecu-
liarily afflicting to his ardent mind, he bore; however, with
philosophical resignation; and by a total intermission of his
studies he had the satisfaction of regaining a considerable
degree of health and ease. Though he was never able to em-
ploy his eyes as he had been accustomed to do. In 1746,
he commenced a course of experiments on the vegetation
or plants in mofs and other singular substances; and in the
following year he examined with minute attention the leaves
of plants, with a view of ascertaining the appropriate action
of their upper and under surfaces. He also employed
coloured injections for the purpose of determining whether
the sap ascends by the bark or wood; and he made various
observations on vegetable monsters, and other circumstances
of vegetation, which were communicated to the public in
one of the most curious and original of his works, entitled,
"Inquiries into the use of the leaves of plants," first pub-
lished at Leyden, in 1754, 4to.; to which supplements
have been added as late as the year 1779.

Bonnet, probably constrained to remit his attention to ex-
periments by the circumstances already mentioned, directed
5 E his
his speculative researches to the faculties of the human mind; and having collected a mass of materials on this subject, he published a kind of abridgment of them, under the title of an "Essay on Physiology," in 1755, at London. This work, which appeared without his name, and which he did not acknowledge for 39 years, contains a concise statement of the fundamental principles of his philosophy; "it traces the origin and progress of the human mind, from the first germ of life, to the development of all its faculties, the mutual dependence of which it points out, as deduced from actual observation. It enters into the difficult subject of human liberty, and endeavours to reconcile it with the divine preference, and with the philosophical principle, that every effect must have an adequate cause. From the essential properties of the activity of the soul, and the effects of habit upon it, the whole art of education and government is deduced; and a system of the former is laid down, materially different from the usually established methods."

Our author's metaphysical ideas were evidently founded on the principles of Malebranche and Leibnitz; but as he had freely discussed some points of a delicate nature, and which were likely to involve him in personal controversy, he chose to conceal his name. His next work, the fruit of five years' labour, was an "Analytical Essay on the faculties of the Soul," first printed at Copenhagen in 1760, 4to, at the expense of the king of Denmark. In this work he assumes the hypothesis of a nature organized like the human body, which he animates by degree, and shows how its ideas would arise from impressions on the organs of sense. Although this performance was well received by some philosophers, it soon subjected the author to the charge of materialism and fatalism; but to this charge he made no reply. Accustomed to retirement, to which mode of life he was obliged to recur, on account of his deafness and other bodily infirmities, he sought the comforts of a domestic life; and in 1759, he married a lady of respectable family, the aunt of the celebrated Sauffre, with whom he passed 37 years of communal felicity. In the prosecution of his physical system, Bonnet published at Amsterdam in 1762, his "Confessions on organized bodies," 2 vols. 8vo. The principal objects of this work were, to detail, in an abridged form, all the most interesting and well-afterd facts, respecting the origin, development, and reproduction of organized bodies; to refute the different systems founded upon "epigenesis;" and to explain and defend the theory of germs. His "Contemplation of Nature," which appeared in 1764, Am. 2 vols. 8vo., was a popular work, displaying the principal facts relating to the different orders of created beings, in an instructive and entertaining manner, and recommended by the charms of an eloquent style, with a constant reference to final causes, and the proofs of wisdom and benevolence in the creator. This was translated into several European languages, and enriched with notes by the author himself, and other writers, in a new edition, printed at Geneva in 1769, 2 vols. 8vo. This treatise on the past and future state of living beings, and supports the idea of the revival of all animals, and the perfecting of their faculties in a future state. To this work he annexed "An inquiry into the evidences of the Christian revelation, and the doctrines of Christliamity, which, with a piece "On the existence of God," was published separately at Geneva in 1770.

Towards the year 1773, he resumed his attention to natural history, and published, in Rozier's journal, a memoir on the method of preserving insects and fish in cabinets. In the following year he sent to the same journal a memoir on the loves of plants, originating in the discovery of a kind of cleft or mouth in the pupil of a lily. Other memoirs contained a detail of his experiments on the reproduction of the heads of fossils, and of the limbs and organs of the water salamander. He also made observations on the pips or Surinam toad, on bees, on the blue colour acquired by mushrooms from exposure to the air, and on various other subjects in natural history. His reputation introduced him as an advocate into most of the literary societies of Europe; and in 1783 he was elected to the select number of foreign associates of the academy of sciences in Paris. His correspondence was extensive, and his attempts to popularize his experiments in the great council of the republic in which he entered in 1732, and in which he had a seat till 1768, he distinguished himself by his manly eloquence in the support of wife and moderate measures, and his constant zeal in the cause of morals and religion, with which, in his opinion, the prosperity of the state was essentially connected. The last 25 years of his life were spent altogether in the country, where he enjoyed, with a competence, the intercourse of chosen friends. Some part of his time was employed in the education of youth, for which office he was admirably qualified. The revival of his works occupied near eight years of his life, and required a degree of application which was injurious to his health. This collection appeared at Neuchatel, in 9 vols. 4to. or 18 vols. 8vo., and contains, besides the works already mentioned, several smaller pieces in natural history and metaphysics. They are all written in French. Towards the year 1788 he manifested alarming symptoms of a dropy in the breast; and these became more aggravated in process of time, and occasioned a variety of sufferings which he endured with patience and tranquillity, till at length he was relieved by death, May 20, 1793, at the age of 73 years. Public honours were rendered to his remains by his fellow citizens; and his funeral oration was pronounced by his illustrious friend and kinsman, M. de Sauffre. Mem. pour servir a l'Hist. de la Vie et des ouvrages de M. Charles Bonnet; Berne 1794. Gen. Bioi.

Bonnet, Jacques, published, in 1725, at Amsterdam, "Histoire de la musique," the history of music and of its effects from its origin to the present time, explaining, in what its beauty consists, 4 vols. 12mo. This history was at first undertaken by the abbé Bourdelot, uncle to the editor of this work, and distinguished by his erudition. Bonnet, brother of Bonnet, the first physician to the duchess of Burgundy, continued it after the death of his uncle, and at length arranged and digested the materials which he found among the MS. papers of his uncle and his brother. Indeed the first volume only was written by Bonnet; the three last were compiled in a patriotic fury by France, a physician, in 1758, who died in 1797, in the flower of his age, having only arrived at his 33rd year. He seems to have been wholly devoted to this undertaking by the abbé Ragnemer's parallel between the music of the Italians and the French, which, though written with the utmost circumspection and civility to France, M. Frenetze thought too favourable to Italy; and instead of a continuation of the history of music, has given us nothing but a violent philippic against the abbé Ragnemer, for daring to draw a parallel between the music of France and Italy, and a censuring of all the most illustrious Italians of the 17th century, such as Carulli, Luigi Rossoli, Scarlatti, and Corelli; and setting up Lulli against them all, has formed his refutation of the abbé into three dialogues; in which two of the interlocutors are champions for Lulli, and only one, and that a lady, neither a deep logician, nor a powerful advocate for the Italians, is the heroine that undertakes their defence. But the poor Italians have no quar-
The execution of the Italians he compares to the dexterity of the fiddler who was brought to Alexandria, to exhibit a trick which he had acquired by infinite pains and practice, of chucking a pea into a distant hole which just fitted it. When all the reward which the great conqueror bestowed upon the fiddler for his unfailing application of time was, to order him a peck of peas.

Indeed all the praise that is due to Bonnet for the first part of what he calls a history of music, is, the having collected materials towards a history of the art; but he was no musician, and equally unable to explain the theory of the ancients as the practice of the moderns; so that his work is totally devoid of taste, order, and useful information.

Bonnet, or Bonnet. Theorophus, an eminent and respectable practicing physician, and voluminous writer in medicine, of Geneva, where he was born, March 5th, 1650. Following in the steps of his father and grandfather, he early attached himself to the practice of physic. After visiting several foreign academies, he was admitted doctor in medicine at Bologna, in 1643, and was soon after made physician to the duke de Longueville. Though he soon attained to high credit in his profession, and had a large share of practice, he dedicated a considerable portion of his time to reading, and to dissecting such objects as the hospital afforded him, with a view of discovering the seats of the diseases, under which the patient had laboured; minuting every deviation he observed from the natural structure of the victims, or other parts of the body, and thus opening a new road for improving the science he cultivated. He also appears to have made extracts of every thing he deemed worthy of notice, from the various works he read. His hearing from some accident becoming defective, he withdrew from practice, and employed the last ten or twelve years of his life in arranging the materials he had collected. The first fruit of his labour, which he gave to the public, in 1665, was "Pharmacum," 2 vols. 12mo. This was printed again, much improved and enlarged, in 1679, in 4to. under the title of "Lavandieris medicus, extricati," &c. compiled principally from Bellaniius and Septuages. In 1675, "Prothomus anatomiae practicae, de abditis morborum causis," &c.; the precursor of his principal work, "Scaphelechrum, saepe ab anatome practicae, ex cadaveribus morbo denatis proponeos illorum et observationes," &c. 2 vols. fol. Geneva 1679, which far exceeded the expectation raised by the prothomus. It was enlarged by nearly a third part, and republished by Mansuet, 2 vols. fol. 1720, and was afterwards taken by Morgana, as the basis of his work, "De sedibus, et causis morborum," by which the feaculechrum is in a great measure superseded. The author begins with observations on the appearances of the brain and other parts of the head; then on the contents of the thorax, abdomen, and pelvis; and lastly, of the extremities; forming an immense body of dissections, which he has illustrated by many pertinent and ingenious observations. "Cours de medicine, et de chirurgie," 2 vols. 4to. 1679. An epitome of the art of surgery, with some sections relating to the practice of medicine, selected from the most accredited authors of the age. "Medicina feptentorialis, collectitio," 2 vols. fol. 1684, shewing how largely the practitioners of the northern parts of Europe, Sweden, Denmark, Germany, Holland, and England, have contributed to the improvement of anatomy, surgery, and medicine, by extracts and accounts of the works of the principal writers of those countries. "Mercurius compositus, seu index medico-practicus, decimae, cautiones, observationes in fugulis aff. libnu, &c. offendit tutam medici viam," fol. 1692. A most useful work, shewing under the name of every disease or affection where cures or observations may be found, and what authors have written upon them. Such an index continued to the present time, though very voluminous, would be highly useful. Bonnet also published "Epitome operum Bennettii," fol. 1655, and "J. D. Turqueti de Maxime, de Arithetica," 1671, 12mo. and "Robauti tractatus phlygenus, et Gallico in Latinam versus," 1675, 8vo. He died of a dropping, March 3, 1689. Hall. Bib. Med.

Bonnet, is a general name. See Cap, Hat, Miter, &c.

Bonnet, in Fortification, a kind of little ramlet, without a ditch, having a parapet three feet high; anciently placed before the points of the salient angles of the gheeis; being paliaded round; of late advanced before the angles of bastions, and the points of ravelins, and faulx-ibrayes. See Plate Fortis.

The bonnet has two faces, from ten to fifteen, or more rods long; the parapet is made of earth, from thirty to thirty-six feet thick, and from nine to twelve feet high; it is environed with a double row of paliades ten or twelve paces distant from each other; both a parapet three feet high, and is like a little advanced corps de garde.

Bonnet à petit, or petit's cap, is an outwork, having at the head three salient angles, and two inwards.

It differs from the double tetradice only in this, that its sides, instead of being parallel, grow narrower, or closer at the gorge, and open wider at the front; on which account it is denominated queue d'arène, or swallow's tail.

Bonnet, in Geography, a river of the county of Leitrim, in Ireland, which passes within four miles of Lough Clean, from which the Shannon issues, and carries boats into Lough Gilly, and thence into Sligo bay. Dr. Beaumont observes, that the day may come, when the spirit of enterprise and commerce will open itself a passage by this channel also. Beaumont.

Bonnet, St. a town of France, in the department of the Higher Alps, and chief place of a canton, in the district of Gap, 25 leagues N. of Gap. The town contains 1528, and the canton 10,284 inhabitants; the territory comprehends 24,5 kilometres, and 20 communes.

Bonnet le Chateau, St., a town of France, in the department of the Loire, and chief place of a canton, in the district of Montbrison, 4 leagues S. of Montbrison. The town contains 1586, and the canton 12,445 inhabitants. The extent of the territory includes 192-4 kilometres, and 10 communes.

Bonnet le Casteil, St., a town of France, in the department of the Pyr de Dome; 5 leagues E. of Brioude.

Bonnet de Beugènes, St., a town of France, in the department of the Rhone and Loire, and chief place of a canton, in the district of Villefranche, 6 leagues N. of Villefranche.

Bonnet de Charolles, St., a town of France, in the department of the Saone and Loire, and chief place of a canton, in the district of Charolles, 24 leagues N.E. of Charolles. The town contains 1321, and the canton 6140 inhabitants; the territory comprehends 160 kilometres, and 7 communes.

Bonnet, in Heraldry, a cap of velvet worn within a coronet.

Bonnet pepper, in Botany. See Capsicum annuum.

Bonnet, in Sewing, an additional part of a sail, 51. 2

laced
Jaced at the bottom or foot of the fore-fall, try-fall, and forest main-fall, of some vessels with one mast, in moderate winds. It is made like the foot of the fall for which it is intended, and has leaching in the upper part, to correspond with and fall through holes in the foot of the fall, by which it is fastened.

The words in reference to it are, lace on the bonnet, that is, fasten it to the course; shake off the bonnet, that is, take it off the course.

**BONNET** chinon, in Conchology, is the common or trivial name applied by French collectors to the *Pattella Chinesis*, in the same manner as we should call it in English the *Chinon bonnet*, or limpet shell; thus also the French *Bonnet deologne* for the *Lamarck Buclum officinale*, etc.

**BONNET** ebinor, in Zoology, the French name of *Simia Sinica*, Gmel. or Chinese ape of Pennant’s Synopsis, a species that inhabits the country of Bengal. See *Simica*.

Oft the same animal is called *Cacusen corvone*, by late French writers.

**BONNETABLE**, in Geography, a town of France, in the department of the Sarthe, and chief place of a canton, in the district of Mayenne. The place contains 4587, and the canton 11051 inhabitants; the territory comprehends 105 kilometres, and 10 communes.

**BONNETEILLA**, in Entomology, an European species of *Tinea*, described by Linnaeus, in *Z. Succ. Fabricius and others. The wings are white, with two little silvery lines, the posterior one of which is waved.

**BONNETIA**, in Botany, (in honour of Charles Bonnet of Geneva,) Schreb. 915. Willden 1050. Mahuria Aublet 222. Jaff. 434. Encyc. method. Chfs and order. *Polypadria Monogynia*. Nat. Ord. uncertain. Jaff. Geo. Chaf. Cal. of one leaf deeply divided into five ovate, acute, concave segments, two larger than the others. Cor. petals five, ovate, somewhat obtuse, concave, longer than the calyx, the three superior smaller, upright; two lower larger, inclined, at a distance from each other. Stam. filaments very numerous, inserted into the receptacle, shorter than the corolla, dilated at the top. Anthers yellow, oblong, tetragonal. P. germ superior small, oblong. Style incurved. Stigma hollow, three-lobed. *Pericarp* capsule dry, membranous, oblong, three-celled, three-valved, valves sharply pointed. *Seeds* many, small, black, oblong, involved in a coloured membrane, affixed to the three-folded receptacle. Eff. Chaf. Cal. in e-parted, two parts larger. Cor. five-petalled, three smaller upright, two larger inclining. Corf. oblong, three-celled, three-valved, many-seeded. Species. B. palustris. Lamark, Illust. tab. 464. A tree fifteen feet high, even or eight inches in diameter; branches upright, chiefly towards the top of the trunk; leaves alternate, petioled, ovate, entire, smooth; petioles channelled, with two small stipules at their base; flowers purple, finked, one, two, or three together, furnished with three caly bracts, one larger at the base of the peduncle, the two others lateral. Native of Cayenne and Guiana.

**BONNEFOIL, Claude-Alexander, Count of**, in Biography, a descendant of an ancient family of Limoulin, was born in 1672, and having entered betimes into the army, served with distinction in Italy under Catzinat and Vendome. Abandoning his country in 1706, and entering into the service of the emperor, a sentence was procured against him by the minister Chamillart, which subjected him to decapitation. Notwithstanding this prostration, he ventured to Paris, and publicly married a lady of the family of Biron. In 1716 he served against the Turks under prince Eugene, and was a major at the battle of Peter-Waradin, where he behaved with singular valour; but in 1720 he had a dispute with prince Eugene, and challenged him, for which offence he was deprived of his employment, and condemned to a year’s imprisonment. Upon regaining his liberty he meditated revenge, went over into Turkey, became a mufli man, and was created a bahshaw of three tails, general of artillery, and at last master of the ordinance. In this situation he introduced European improvements among the Turks, and lived much esteemed to the age of 75 years. He left a son, who succeeded him in the office. He was a man of quick parts, courage, and ability; but singular in his conduct, quarrelling in his disposition, and addicted to fatigue. Upon changing his religion, he said, "It was only changing his night-cap for a turban." With all his eccentricities he preferred a calm temper; and said, "In all my perfections I never lost my appetite or good humour. Happy those who have philosophy in their blood!" His "True Memoirs," and his "New Romantic Memoirs," were published in London, in 1755. Nouv. Dict. Hist.

**BONNEVILLE, a town of Savoy, the chief place of a district in the department of the Savoie and Oife, and chief place of a canton, in the district of Chateaudun, fested on the Loire. The place contains 1151, and the canton 10638 inhabitants; the territory comprehends 3371 kilometres, and 27 communes.

**BONNEVILLE, a town of Savoy, the chief place of a district in the department of the Savoie and Oise, and chief place of a canton, in the district of Mont; the place contains 769, and the canton 11984 inhabitants; the territory comprehends 2071 kilometres and 27 communes.

**BONNY, a town of France, in the department of the Loiret, and chief place of a canton in the district of Gib; containing about 1300 inhabitants; 3 leagues S.S.E. of Gib.**

**BONNY, a river of North Africa, which forms the eastern shore of New Calabar, in the kingdom of Benin, discharging itself into the bay of Biafra.**

**BONTE, in Mineralogy, a name given by our miners to a bed of ore found in many places in hills, not forming a vein, nor communicating with any other vein, nor terminating in firings, as the true veins do; it is a bed of ore of five or six fathoms deep, and two, or somewhat less left than that, in thickness, in the larger sort; but there are smaller, to those of a foot long. They have their trains of shoal-stones from them, and often deceive the miners from the expectation of a rich lead vein. They differ from the liquats only in being round beds of ore, whereas those are flat.**

**BONO et male, Writ, de, in Law, a special writ of gaol-delivery was anciently used for each particular prisoner under this title: but these being found inconvenient and oppressive, a general commission for all the prisoners has long been established in their stead.**

**BONONCINI, Gio. Maria, in Biography, Modanele Accademico Filarmonico di Bologna, and father of the celebrated John and Anthony Bononcini, published in 1673, a work...**
work entitled "Il Musico Practico," or the Practical Musician, dedicated to the emperor Leopold, in thin quarto. This treatise contains many useful precepts and examples of composition; but is neither so accurate as to be implicitly followed, nor so ample as to supply all the wants of a musical student of the present times. Page 18, he speaks of a canon, in his opera terza, for fifteen hundred and ninety-two voices, or six hundred and forty-eight choirs; which, on account of the difficulty of finding such a number of fingers, assembled together, he has reduced to twenty-two. In the historical part of this tract, his knowledge is not very profound, or reading extensive; and the authors he cites, in support of his information, give it no additional weight. The examples he has given of the use of the second, page 64, are, in many instances, erroneous, and such as can be found in the works of no good contrapuntist of the last century. The second is not only confounded with the ninth by this author, page 64, but improperly prepared and resolved.

This discord of the second seems to require one of the parts to remain stationary, till the suspended harmony is completed; but Bononcini often puts both parts in motion. In his example of counterpoint upon a plain song, page 76, there are other disallowances.

Much explanation and instruction are given for the ecclesiastical modes, but none of the keys, used in secular music, are defined or ascertained.

Bononcini, John, the celebrated opera composer and rival of Handel, was the son of Gio. Maria Bononcini, of Bologna, the subject of the preceding article. He first arrived in England in 1720, on the establishment of our famous "Corporation of the Royal Academy of Music," under the auspices of king George I. and the principal nobility and gentry in the kingdom; for the support of which, 50,000l. were subscribed. We have now before us the original deed and covenant, with the seal and signature of all the subscribers, who became academicians, and bound themselves and their respective executors, administrators and assigns, to pay all such respective sums or sums as shall from time to time be demanded out of their subscription, &c. The king subscribed 105l. and the rest, to the number of 73, in this original lift, 200l. each.

It is a curious record to be in possession of the autography of such a number of the heads of our most ancient and illustrious families thus preferred. It is not, indeed, equally important or honourable with the lift of the barons who signed the Magna Charta; but it is such a memorial of our prosperity, good-humour, patronage of a polite art, and happiness, that we would give a fac-simile of each signature on a copper-plate, if we had room.

In order to render this academy as complete as possible, it was determined by the directors not only to engage a lyric poet in their service, but the best vocal performers that could be found in the several parts of Europe where there was a musical theatre, and the three most eminent composers then living who could be prevailed upon to visit this country. For this purpose Bononcini was invited from Rome, as he tells us himself, in the dedication of his Cantatas and Duets to George I. (Qui mi trovo, chiamato da Roma per servigio della reale Accademia di Musica). Attilio Ariosti, from Berlin, was likewise engaged as a composer on this occasion; and Handel, who resided at this time with the duke of Chandos, at Cannons, was not only included in the triumvirate, but commissioned to engage the singers.

During the first year of this establishment, these three composers furnished new operas alternately, till January 1721, when, for dispatch, an act of the opera of Muzio Scacchi was assigned to each of these masters; the first act to Attilio, probably from levity, as he was far from young when he came hither; the second act to Bononcini, at that time about 50; and the third to Handel, the youngest of the three.

As this division of the drama seemed to imply a contention and trial of skill, the public took sides, perhaps less from feeling than the spirit of party; for party whores our appetites for pleasure as well as politics. Many of the nobility and gentry, who had been in Italy, and had witnessed the applause which Bononcini had received there as a composer, were partial to him here. While others who had visited the court of Hanover before the decease of queen Anne, and knew the favour in which Handel had stood with the electors, as a great performer on the organ and harpsichord, before his compositions were much known, and afterwards had heard his productions performed in London, were unwilling to be pleased with the compositions of his principal rival. Attilio, though a good musician, seems to have been out of the question; neither his fame nor talents being equally splendid with those of the other two, by whom, and for whom, the conflict continued with as great a rage as between the houses of York and Lancaster, till the year 1727; when Bononcini, after the run of the last and belt opera which he had composed in England, "Alfyana," quitted the contest with Handel, and ceased to write for the stage. But the feuds among the friends of these great musicians, which Swift's epigram had rendered so ribald, did not end here, but continued as long as Bononcini remained in this country.

Here, as his biographer, it seems our duty to give his real character as a composer. He was seldom heard on the violoncello in this country, though as a performer on that instrument he was extremely admired in Italy; and his melody was, perhaps, more polished and vocal, though not to new as that of his powerful saxun rival. Having been born and nurtured in Italy, where singing was far more highly cultivated, he was reported by all his countrymen to sing in a most exquisite taste. His recitative too, both in writing and utterance, was universally allowed to be the best of the time, and the true genius of the Italian language; but as a correct, powerful, and inventive composer, he was an infant compared with Handel.

Of all the works which this celebrated composer published in England, his book of "Cantate e Duetti," dedicated to his
his majesty George I. in 1721, the year after his arrival here, seems the bell. In 1722, his "Divertimenti da Camera," tradotti (transposed or accommodated) pel Cembalo da quelli compositi pel Violino e Flauto," were published by himself, and sold at his lodgings in Suffolk-Street. In these we meet with pleating and mallerly passages, but they are far inferior in force, contrivance, and invention, to the lemons of Handel, that even his admirers, on a comparative view, must have regarded them as frivolous and trivial. The adagios are the bold movements in them, and have notes of talle and passages of expression, which must have been then new to English ears. Bononcini, however, like other composers of his time, is very sparing of his passagis, and indulges idlenefs and want of invention by frequent refrains, or repetitions, which Handel seems always to avoid more than any composer of this period, except the Scarlatti, father and son. In several of these lemons the subject is heard in one part or other throughout a whole movement; as in the minuet, page 35, the first bar is perpetual.

His funeral anthem for the duke of Marlborough was set and performed the same year, 1722. The short symphony, and whole first movement are grand, and of a melancholy cast. The second movement has not much to recommend it. The third is more lugubr, than passionate or pathetic. The fourth is plaintive, but was not new at the time it was written. The fifth and last movement has musical merit, but none of true feeling, or genius; no "heart-eating sighs," or such exclamations of sorrow and affliction as would naturally be expected from a man of great abilities, who either felt the words or the loss of his patron.

Bononcini was a celebrated and voluminous composer long before he arrived in England: his eighth work, confining of "Duetti da Camera," was dedicated to the emperor Leopold, and published at Bologna in 1691. The seven operas he composed during his residence in England, make but a small part of his dramatic productions. He produced two operas at Rome in 1694; after this he went to Vienna, where he composed many operas and oratorios for the imperial court and chapel. In 1726, he was again in high reputation as a dramatic composer at Rome, whence he was invited to London by the directors of the Royal Academy of Music. In 1727, he published "Twelve Sonatas for two Violins and a Bafe." It was about this time that he was accused of arrogating to himself a madrigal composed by Lotti of Venice, and published in that city in 1705, in a work entitled "Duetti, Terzetti, e Madrigali a piu Voci," dedicated to the emperor Joseph. The title of this madrigal is "La vita ed amiche," and has for initial line "In una flpe ombrosa." We are in possession of the book in which this composition was printed, and, upon examination, are extremely astonished that Bononcini would risk such great reputation of which he was already in possession, for a production which could increase it so little. The countenance of this madrigal is certainly correct, it is dry, and, all the subjects of fugue are such as had been used by thousands before Lotti was born. There are many madrigals by much older masters, particularly Luca Marenzio, Stradella, and the elder Scarlatti, that are learned and pleasing in modulation, and more facetious and agreeable in the taste of melody that are used as subjects of imitation. Indeed, Bononcini's plagiarism was as weak as wicked. We need to do the truth of the charge, from an idea that his reputation was so well established, as his genius fortunate, that he had not the least occasion to have recourse to such illicit means of extending it. The crime of theft is very much aggravated, when the thief is not impelled to it by want. Rich men and milers have, however, been often detected in illegal appropriation. Yet upon a careful and critical examination of the works of John Bononcini, we think his wealth did not conflict in rich and deep mines of science, nor were his resources in sound and elaborate composition, either in the ecclesiastical or madrigal style, very great. His performance on the violincello, his cantatas, and his operas, had been admired in every part of Europe; but not content with partial fame, he aimed at universality. In his anthem for the funeral of the duke of Marlborough, he attempted to rival Handel in his grand church style; and finding in how much veneration well written madrigals were held at the Academy of Ancient Music in London, where Handel at this time was regarded as a modern, and an innovator, he was tempted to risk the reputation he had fairly acquired, by trying to augment it in an illegal manner. Tradition had filled our minds with ideas of his abilities, which the examination of his works has diminished; while a strict scrutiny into the productions of Handel has greatly augmented our veneration for this composer. We have now before us, in a printed pamphlet, all the letters that passed between the Secretary of the Academy of Ancient Music and signor Ant. Lotti on this occasion, with such testimonies and certificates, from the most respectable professors at Venice and Vienna, in proof of the madrigal in dispute having been composed by that master and not by Bononcini, that not the least doubt remains of the fact.

Soon after the funeral of the duke of Marlborough, the countess of Godolphin, who, upon the decease of her father, became duchess of Marlborough, as settled in his patent of creation, received Bononcini into her house in the Stable-yard, St. James's, and settled him on a pension of 500l. a year. Here he lived in ease and affluence, enjoying as an artist the olim enm digitate in its full extent; the duchess having concerts twice a week, in which no other music was performed to the first people in the kingdom than the compositions of her favourite master, executed by the principalingers of the opera. It is supposed that he gained a 1000l. by the book of cantatas which he published by a two guineas subscription; many of the nobility subscribing for five or ten copies; the duke and duchess of Buckingham for twenty-five books each, and the countess of Sunderland alone for fifty. After the dispute concerning this madrigal, his importance diminished in England; and in the year 1733, he quitted the kingdom. After which he resided at Paris for several years, where he composed masses and motets for the chapel royal. At the conclusion of the peace of Aix la Chapelle in 1748, he was invited to Vienna by the emperor of Germany to compose the music for that occasion, and is said to have been presented with eight hundred ducats for his trouble. After the conclusion of the peace was over, quitting Vienna in company with Monticelli, he fell off in the same post-chaise with this celebrated singer for Venice, where they were both engaged, Bononcini as composer, and Monticelli as first man, in the opera for the ensuing Carnival in that city. Here we lose sight of this renowned composer, who, if we suppose him to have been more than thirty years of age in 1691, when his eighth work was printed at Bologna, and dedicated to the emperor Leopold, he must at this time have attained his eighty-seventh year; which will give weight to the general opinion, that his life was extended to near a century!

Bononcini, Antonio, brother of John, and an opera composer, little if at all renowned in Italy, than the author of Gryphius and Affranus. It has always been imagined that the famous opera of Camilla, the second attempt at that species of drama in England, in 1706, was set by John Bononcini; but we can find no proof of it in any one of the numerous volumes of operas in our possession, or dramatic records.
records that we have been able to consult. “Camilla Regina de Vollet,” written by Stampiglia, and set by Marc Antonio Bononcini, the brother of John, for the imperial court of Vienna, about the year 1697, was in such favour all over Italy, that it was performed at Venice, 1698; Bologna, 1705; Ferrara and Padua, 1707; Bologna again, 1709; Udine, 1715; and a third time at Bologna, 1719; and seems to have been the opera that was performed in England, during 1706, fifteen times; 1707, twenty; 1708, ten; and 1709, eighteen; in all sixty-four times.

BONONIA, in Ancient Geography, a town of Gallia Cispadana, called Felinsa, at the time when the Etruscans were masters of the northern part of Italy, and then their capital; supplied by fame to have been founded by an Etruscan prince, denominated Felinsus. But when these first professors were driven away by the Boians, it acquired the name of Bononia. In the year of Rome 554, the Romans conducted a colony to this place, with a view of fortifying this side of the country. It afterwards became a municipal city; and owed much of its magnificence to Augustus. See BOLOGNA.—Also, a town of Upper Panonia, placed by Theodorus on the Drave.—Also, a town of Dacia Ripenit. Not Imp.—Also, a town of Upper Moa, in the route from Viminacium to Nicomedia, between Dortican and Ratariaria. It. Antonius.—Also, a town of Lower Panonia, in the route along the Danube, between Culi and Cucci, 19 miles from Sermon, according to Annamnus Marcellinus.

BONONIAN Stone; a small, grey, soft, glossy, fibrous, ponderous, sulphurous stone, about the bigness of a large walnut, or even of an orange; when broken, having a kind of crystal, or sparly tale within; found in the neighbourhood of Bologna, or Bononia, in Italy; and, when duly prepared, making a species of phosphorous. It is of no certain figure; but in sometimes round, sometimes oblong and cylindrical, and sometimes conical, which last kind is said to be the most shining and transparent. Its colours are various; some being ascoloured, others of a sky-blue, some of a ferruginous colour, others yellow, others greyish white, and some almost perfectly white. The best for use are said to be the fly-blue-coloured and the white. This stone is found in several parts of Italy, but especially in the district of Bologna, towards the Apennine mountains, and on mount Patero, or Patera, about five Italian miles from Bologna. They are most commonly found after heavy rains, among the earth washed off from the neighbouring mountains. In this case the several masses of it appear, when the earth is washed away, as bright as burnished silver, or with the glittering of tale resembling the globs of a smoking-gifhs. This stone is the ponderous spar, or combination of vitriolic acid with ponderous earth. See SPAR.

A chernel, whose name was Vincenzo Cancliarolo, having gathered some pieces in a river at the foot of mount Patero, carried them home, in hopes by the fire to draw silver out of them; but instead of what he expected, found that admirable phenomenon they exhibit, which consists in this, that having been exposed to the light, they retain, and shine in the dark. This discovery was made about the year 1630.

The property of this stone is, that though it has no lucid appearance in the dark, until it undergoes a particular calcination, it becomes capable, by previous preparation of inhaling, when exposed for a few minutes to the light of day, or even to the flame of a candle, such a quantity of light, that it afterwards shines in the dark for an interval from eight to fifteen minutes, like a glowing coal, but without any visible heat. The light it emits is sufficient to read by; if the letters be placed near it. It does not retain its light long, but requires often renewing it, and when well prepared, its virtue will last five or six years, but seldom longer.

The method of using it to the greatest advantage, is to remain for some time in a dark room, and to introduce the calcined substance immediately after its being exposed to the light.

M. Homberg is said to be the first person who taught us the true manner of preparing and calcining the Bononian stone, having made a journey to Italy on purpose to learn it. Though others allege, that the true art of preparing and calcining the stone is lost; there having been but one, an ecclesiastic, who had the true secret, and who is since dead, without communicating it to any person. See Phil. Trans. N 21.

M. Homberg, on his return from his travels in Italy, brought with him a great number of these stones, and calcined 200 of them in so many different ways, that he at last found out the secret. His method was as follows:—He first tempered the stone all over, till it appeared like tale; then, having founcked it thoroughly in brandy, and imbibed it in a pailte or crucible made of other stones of the same kind pulverized, he calcined it in the fire, or in a small furnace. After this operation, he took off all the powder of the crust in which the stone was included. Both the powder and the stone, when brought into the dark from the open air, make a luminous appearance; and the former, if kept in a strong and well-skilled phial, when exposed to the air, imbibles the light, and if sprinkled on pictures and letters, illuminates them in the dark. In preparing the paste, the stone must be pulverized in a brass mortar. This circumstance is mentioned by Lemery, who, in his “Cours de Chimie,” describes at large the whole process of preparing this stone, which he acknowledges to have learnt from Homberg himself.

The whole art of preparing this stone, so as to make it shine in the dark, is described at large in E lovck’s “Philosophical Collections,” by Sir Marc Antonio Cello; and in a book of the same author, published at Rome in 1719, on this subject: and the substance has hence been called “ Il Fosforo de Marc Antonio Cello.”

The following has been stated as an approved method of calcining this stone. Make a cylindrical furnace of iron or copper plates, 7 inches in diameter, and as many in height. Line the inside of it with a strong lute, so that the inside may be 6 inches wide in the clear hollow; at the top of this make four notches, 2½ inches deep, and 1½ inch wide; to this annex a cylindrical part of the same diameter, but a little higher; and at the bottom make two all-holes, or airholes, big enough to admit the hand. Line this, like the other, with good lute, and give it a bottom of lute, that it may more powerfully reflect the heat; and line the cover for the top with lute. Into this furnace introduce a monowire grate near the bottom, for retaining the coals, and form to admit of free access of air. On this grate lay some pieces of lighted charcoal, and over these some pieces not lighted; all bruised to the size of about a walnut. Some of the stones must be powdered, and those which are to be calcined must be dipped in strong aqua viva, and while wet rolled in the powder, or the powder itself may be made up into thin cakes with mucilage of gum tragacanth. The stones, thus covered, or the cakes, must be laid upon the bed of charcoal close to one another, and another bed of small pieces of charcoal laid over them to the top of the furnace; the cover of the furnace is then to be put on, and the fire lighted. When the charcoal is entirely consumed, and the whole is cold, take out the stones, and, separating the crust from them, wrap them up in flax or cotton, and keep them close in a box for use. Preserve the crust taken off the stones;
for this flies as well as the flone; and being pulverized, may be rubbed over any surface for emitting light, the surface being first dusted over with the white of an egg in order to make it adhere; and this will shine like the flone. This kind of furnace is not absolutely necessary to the operation; but it is convenient to know the quantity of charcoal requisite for giving the shining quality to the flone; since an excess of heat destroys it, and too small a degree is not sufficient to produce it. The greatest degree of phosphorus seems to depend on a due application of the heat. An extreme degree of heat suffices the flone. For other methods of preparing this kind of phosphorus, see Phosphorus. See also Light.

This property of affording a phosphorus by calcination, is common to the other gypsnum, when pure from metallic or other heterogeneous mixtures; the artificial gypsnum succeeded equally with the natural, and it is found to belong to a variety of other substances. M. Margraf observes, that all substances which have this property contain a vitriolic acid, united to an alkaline or calcareous earth.

M. Elpigni observes, that one Zagonia had a method of making flatus and pictures of the Bononiense flone, which would shine variably in the dark; but he adds, the period died without discovering his secret. See Phil. Trans. N° 134.

BONONIENSIS, in Ornithology, the specific name of the greater lapwing, tringa bononiensis of Gmelin, and canellius bononiensis major of Brisson. The legs of this kind are ochraceous; head and upper part of the neck chestnut; body above black, beneath white; throat and breast spotted with ferruginous. Gmel. Ol. This is larger than the common lapwing (tringa canellius); the beak is yellowish and black at the tip.

BONONIENSIS; pafferculus bononiensis of Brisson. This is fringilla brachyura of Gmelin, or short-tailed sparrow.

BONOSIANI, or Bonosiaci, in Theological History, an ancient branch of Adoptiani, in the fourth century, denominated from their leader Bonosius, a bishop of Macedonia.


Gen. Char. Col. tubular, five-toothed. Cor. monopetalous, almost labiate; tube longer than the calyx; border with five emarginate divisions; the two superior long and straight, the three inferior pendant. Stam. five inclining. Pjpf. germ superior; style capillary; stigma bifid; Pericarp, capsule ovate; three-fid; cells three; seeds three.

Species. B. geminifora, an annual plant; leaves alternate, smooth, lanceolate, toothed; flowers violet, large, axillary, growing in pairs. A native of New Spain.

BONPORNKEL, a denomination given to a coarse kind of bread used in Weiphulm. See Bread.

BONN-HOMMES, or Bon-Hommes, in Ecclesiastical History, a sort of hermits of St. Auguitn, founded by F. de Paula. They were brought over into England in 1289, by Edmund, earl of Cornwall, and settled at Alhong, in Bucks, besides which they had only one house more at Edington in Wilts. They followed the rule of St. Auffin, and wore a blue habit.

The name is said to have argen from Louis XI. of France, who used to call F. de Paula, prior of the order, le bon homme. Till then they had been called the Minimi, or order of Grammont. See AEBIGENSES.

BONSDORFII, in Entomology, a species of Cerculio, of an oblong form. Colour white, with a black band and spots; mouth falcated and brown. Bonf. Curc. Succ. Inhabit Sweden, and is half the size of cerculio fuligignaris.

BONTAIN, in Geography, a kingdom of the island of Celebes, situate on the south coast, and on the east shore of the bay of Boni. It is bounded on the west by the river Tino, which divides it from the kingdom of Touratte, on the north, by the mountains which bear its own name; on the east, by the river Kalekongang; and on the south by the sea. It was anciently considered among the dependent allies of Maeasiers, and governed by their kings; but it has been twice conquered by the arms of the Dutch East India company and their allies, and was ceded to them, in property, by the treaty of Boni. The country is pleasant, and fertile in rice. It has a large bay, where ships may lie in perfect safety during both the monsoons. The foundings are good and regular, and the bottom soft mud; nor is there any danger in coming in, except from a ridge of rocks, which are above water, and are a good mark for anchoring. The highest land in sight is called "Bontain-hill." S. lat. 5° 30'; and when a ship is in the offing, at the distance of 2 or 3 miles from the land, she should bring this hill N. or N.W., and then run in with it and anchor. In this bay there are several small towns; that which is called "Bontain," lies in the N.E. part of it (S. lat. 5° 10'; E. long. 117° 28'), and here is a small palisaded fort, on which are mounted eight guns, that carry a ball of about eight pounds weight; it is just sufficient to keep the country people in subjection, and is intended for no other purpose; it lies on the south side of a small river, and there is water for a ship to come close to it. Wood and water are to be procured here in great plenty; likewise plenty of fresh provisions, at a reasonable rate; the beef is excellent, but it would not be easy to procure enough of it for a squadron. Rice may be had in any quantity, and also fruits; in the woods there are herds of wild hogs, which may be purchased at a low price, as the natives, who are Mahometans, never eat them; and fish may be caught with the seine. The tides are very irregular; it is commonly but once high and once low in 24 hours; and there is seldom a difference of six feet between them. The inhabitants of Bontain, and those of Boelo- Comba and Bera, are the belt humoured, most peaceful and most tractable of all the subjects belonging to the Dutch company, in the whole island of Celebes.

BONTEMPI, Angelini, in Biography, a native of Perugia, and author of the first history of music in the Italian language, with which we are acquainted. He was an able proficer, of considerable learning, who flourished about the middle of the 17th century. His work, which has for title "Historia Musica di Gio. And. Angelini Bonemp," was published at Perugia, in small folio, 1695. It is become somewhat scarce, which enhances its value with collectors of books, and having been long unable to procure a copy, we imagined when one was found, from Brodard's character of the work, that we were in possession of a greater treasure than on examination it proved to be. For with great parade of his learning, science, and acquaintance with the Greek theorist, that are come down to us, he leaves us in an utter darkness concerning the practicis of ancient music as ever; and to say the truth, he has furnished us with but little information concerning the modern of his own time, with which, however, as a contrapuntist, he seems to have been perfectly well acquainted. Indeed, by the frequent use he makes of scientific terms, his book, when casually opened, has more the appearance of a dry mathematical treatise, than the history of an elegant art.
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grailed themselves in writing "Aia Palatrina" for the
church; secular music was then but little cultivated, and
less respected there, till opera and oratorios had made some
progress in polishing melody, and in the just accentuation
and expression of words.

BONTIA, in Botany, (in honour of Jacobus Bontia, a
physician at Batavia, author of a treatise "De Medicina In-
dorum"). Linn. species 800. Syll. 579. Reich. 2. 200.
Wilden. 1208. Sch. 1632. Schult. 217. Clas and
order, Didynamia Anginiformis. Nat. Ord. Perforatae—
allied to the Solanis. Juff.

Gen. Char. Per. calyx one-leaved, five-parted; segments
ebrous, erect, permanent. Cor. one-petalled, ringed,
tube long, cylindrical; border gaping; upper lip erect,
reflexed near the end, emarginate; lower semitrifid, the size
of the upper. Stam. filaments stalked, bending to the upper
lip, the length of the corolla; authors simple. Pet. germ
ovate; style simple; stigma bifid, obtuse. Pericarp a
ovate, with an oblique apex. Seed, nut oval, one-celled,
egermating.

Eff. Char. Cal. five-parted. Cor. two-lipped; lower lip
three-parted, revolute. Drupes ovate, one-seeded, with an
oblique apex.

Species, B. dagbeoides. Barbadoes wild olive. (La Marek
IIlllul. Tab. 546.) "Leaves alternate; peduncles one-
flowered." Linn. A shrub four or five feet high; leaves
rather stiff, laciniate, smooth, green on both sides, lower
ones ferrate, upper ones entire. Flowers yellowish, with a
line of dusky purple across the lower lip; axillary, fidget, or
in pairs; tube and lower lip hairy. It was cultivated by
Mr. Bentick in 1693, and flowered with Dr. Sherard in
June 1723.

Propagation and Culture. It is cultivated in Barbadoes for
making hedges, and may be raised in England from seeds
fowl on a hot-bed early in the spring. It must afterwards
be transplanted into a small pot filled with light earth, and
planted into a moderate manner's hot-bed, with a large
allowance of air and water in hot weather, but should always
remain in the flore. It may also be propagated by cuttings
in the summer. Being evergreen, and growing in a pyra-
midal form, it makes a pretty variety in the flower.

BONTIA, (Brown Jamaica.) See Avicevnia germin.
ans.

BONTIA, (Pet.) See Epi ден in carinatum.

BONTIA, in Conchology, a species of Helix, of which
several varieties are described by Chemnitz. This shell
is somewhat conic, ventricose, perforated, and pellicoid, with
the tip black; on the first whorl three yellowish bands;
 aperture ovate. Helix botnia is a native of Bengal; the shell
is extremely fragile.

BONTIUS, JANES, in Biography, a native of Leyden,
was educated in philosophy and medicine, under his father
Gerard; and being sent to the East Indies, practised physic
at Batavia about the middle of the seventeenth century. On
his return to Europe he wrote several valuable works on the
diseases and practice of medicine in India. These are, "De
conservanda sanitac a, ac dieta sania in India observandis;"
"Methodus medendi, qui aportat in India orientali uti;" "Ob-
servations selecta ex divinationes cadaverum ac autopha
descripta." He also published curious observations relating
to the botany and natural history of those regions, more es-
specially the vegetables used in medicine and diet in his work
titled "De Medicina Indorum," in 1642, and afterwards,
with Alpinus's work "De Medicina Egyiptorum," 4to.
1718. He also published "Hortus Nat. et Med. Index
orientalis," fol. in 1658. His brother Regnier was many years
professor of medicine at Leyden, and rector of the university.

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BONTORY, in Geography, a town of Poland, in the
province of Bracaw, 20 miles south of Brlawcz.

BONVINCINO, ALESSANDRO, called Le Moretto, in
Biography, an eminent painter of historia and portrait, was
born at Rovato in 1524, and studied for some years under
Titian, but he was enamoured with the designs of Raphael,
which he accidentally saw; and devoting himself to the affi-
duous study of those master-pieces of art and genius, he be-
came an exalted good painter. His works are eagerly
purchased, and much admired for the tenderness of the pencil-
the, the correctness and spirited expression of the figures,
the neatness of the finishing, and the rich variety of the de-
signs, consisting of velvets, damasks, or satins, copied after
nature, and wonderfully imitated. He was equally excellent
in portrait, and placed by some artists in competition with
Titian. He died in 1564. Iphigonton.

BONUS HENRICUS, in Botany, (Bath. &c.) See Ch-
nojobium.

BONZES, or BONZUS, a name given to the priests and
religion of China, Japan, and Tonquin. This is the ap-
pellation under which the priests, who are attached to the
worship of Fo (see Fo), are generally known among Euro-
peans. They are called "Talapoini" by the Siamese, "La-
mas" by the Tartars, "Ho-thing" in China, and "Bonzes" in
Japan. They generally live in a sort of community, in
places apart, or confin'd wholly to them. The island
Pou-to, near Chufan, is a famous seat of bonzes, being
entirely inhabited by them, to the number of 3000, all of
the sect of Hothing, or unmarried bonzes.

They live a kind of Pythagorean life, and have not less
than four hundred pagodas, or temples, in this little island.
They have ano' females, called bonzesses, a fort of nuns,
who dedicate themselves to the worship and service of some
temples or idols. They are obliged to abstain from all con-
verse with men, and on that account are clapttered in large
monasteries, like those of the Romish and Greek church.
For incontinency these bonzesses are condemn'd by the
mandarins to a kind of pillory called Ranghi, which fee.

These bonzes, or Chinese priests of Fo, worship him
under the forms of several animals, through which they
pretend that he had transmigrated before he was defined;
and ingroving the worship of this imaginary deity to them-
sehls, in the Chinese temples, they support and propagate
it, with a view to their own personal emolument and in-
fluence, by the most unwarrantable impostures. They ad-
mit, however, the distinction between good and evil; and
they declare that, after death, rewards will be bestowed on
the good, and punishments inflicted on the wicked, in place
defined for the souls of each. They teach, that the god
Fo appeared on earth for the purpose of sobering mankind,
and of retarding to the paths of salvation those who have
frayed; that it is by him their sins are expiated; and that
he alone can procure for them a happy regeneration in a fu-
ture life. They enjoin the strict observance of five precepts;

of which the first forbids the killing of any living creature,
of whatever nature it may be; the second, the taking away
of the goods of another; the third forbids men to pollute
themselves by uncleanness; the fourth, to lie; and the
fifth to drink wine. They, above all, recommend the prac-
tice of certain acts of mercy; such as, treating their bozes
well, building monasteries and temples for them, and sup-
plying them with every thing necessary for their main-
tenance, as the most effectual means of promoting the ben-
fit of their prayers, mortifications, penances, and other mi-
ritious actions, towards the amelioration of their own souls,
and for obtaining a happy training abon in another life.
On the other hand, they terrify those who withhold their
benefactions from them with menace; affirming them, that they

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shall hereafter revive in the form of dogs, rats, serpents, horses, 
and mules; and that they shall be for ever exposed to the 
most degrading and wretched transmigrations. These me-
naces seldom fail of making a deep impression on the minds 
of the credulous vulgar, in such manner that they often persuade 
them to burn, at the funerals of their deceased relatives, 
paper gilt, or wafheil with silver, silk, cloth, and other gar-
ments, which, they pretend, will be converted into substan-
tial gold and silver, and superfluously, for the use of 
their parents and friends. Composed of a florin of an 
old man, who was led to believe, by the representa-tions 
of these bonzes, that his soul should pass into the body of one 
of the emperor's post horses. The poor man was so dishearten-
ed, that he could neither eat nor sleep, and his grief was such 
as to threaten the speedy termination of his life. He learned, 
however, that the souls of the Christians were exempted 
from these dreadful metamorphoses; upon which, he applied 
to one of the Jesuits for Christian baptism, affuring him, that 
he would rather be of that, or any religion, than transmi-
grate into a post-horse. The Jesuit complied with his re-
quest, and made his mind easy. Those bonzes are perfectly 
aquainted with all the arts of hypocrisy and deceit; and 
dextrously practive them as occasions occur. They addict 
themselves to rigorous fasting, frequent watchings, and long 
prayers before the altars of Fo. When they cannot obtain 
gifts by cunning and address, they endeavour to procure 
them by exciting compasion, and by submitting to the 
severest penances, and practicing the most rigorous austerities. 
With this view they often appear in public places, as fright-
ful spectacles of mortification. They often drag along the 
streets heavy chains fastened round their necks, arms, and 
legs: they beat their heads against the fiones and poles, and 
mane their bodies, so that they are smeared with blood; 
they carry burning coals upon the tops of their naked 
heads; and some of them are carried about in a kind of 
stenan, the infide of which is stuck full of nails and spikes, 
so that they cannot stir without wounding themselves; and 
these nails they fell to the populace for a few pence, as 
amulets and preservatives against all harm, and as efficacious 
means of bringing down blessings on the purchaser and his 
family. By pretending to know the present state of the 
dead, and the future condition of the living, they contrive 
to extort money from the surviving friends, in order to pro-
cure for the deceased a speedy release and passage into a bet-
ter state. Many other infinite of their knavery are related 
by Du Halde, Le Compte, and other writers. Some of 
these are so atrocious in their nature, that the relation of 
them cannot be read without horror; and we are led to hope, 
that they are rectified by the Jesuit missionaries, to whom 
the bonzes have been great enemies, and against whom they 
have excited various persecutions, with some exaggeration.

We read of their privately feizin men and women, and 
hurrying them away in a clofe sedan, where nothing is to be 
seen but the tops of their heads, and their eyes moving in a 
terifying manner, to the next river or canal, and drowning 
them without mercy, before crowds of spectators, who are 
harangued by one of the fraternity into a firm belief that 
the persons so treated had earnestly requested to be thus dis-
patched out of the world, in order to obtain immortality in 
a future state. With all the external appearances of fanctity 
and austerity, these bonzes unite voluptuous manners and 
secret proficieny, of which various instances are recited. 
Notwithstanding the infatuation which induces the vulgar to 
support the superfluous superstition of the country, the condi-
tion and character of a bonze are generally despised in China. 
Most of these fanatical impostors are sprung from the dregs 
of the people. Thiole of Pegu, however, are said to be 
generally gentlemen of the highest extraction. See Pegu. To 
recruit and perpetuate their sect, they purchase young chil-
dren, whom they betimes initiate in all their mysteries, and 
whom they instruct in every trick and deception which may 
render their profession profitable; these afterwards succeed 
them, and transmit their arts to other young bonzes, who 
are educated in the same manner. They are, in general, 
very ignorant, and unable to give an exact account even of 
the true doctrine of their sect. Although they have no re-
gular hierarchy, they acknowledge superiors, whom they 
call "tah-so-chang," or bonzes. This rank descends to 
those who have attained it particular distinction, and the 
fifth place in all religious assemblies at which they may 
be present. There are bonzes of all conditions; some defined 
only for collecting alms; others, better skilled in the art of 
speaking, and who have acquired some knowledge of the 
Chinese literature, are commissioned to visit the literati, and 
to intimize themselves into the houses of the great; old 
men, rendered venerable by age, and by a grave deportment, 
are employed to exercise their talents among the female sex; 
these prefide in all their assemblies, which, though not com-
mon, are held, however, in several provinces. These religi-
ous clubs are very lucrative to the bonzes. One of these 
priests enters the chapel, where the female devotees are af-
femled, and fings some anthems to the god Fo. At length, 
after having for some time repeated "Onito Fo," (Onito 
being the name of another deity more ancient than Fo, and 
worshipped by the Japanese under the name of Anida, which 
foe), and after being flaved with the tinkling noise of several 
small kettles, upon which they beat, they place themselves 
at table, and the noyous devotion terminates with mirth and 
a good repart. On days of greater solemnity, the bonzes 
adorn their places of worship with several idols, and numer-
ous paintings, exhibiting under various forms the different 
punishments inflicted on the wicked in hell. The prayers 
and feating continue seven days, during which their chief 
bufnefs is to prepare and confecrate treasures for the other 
world. In every province of China there are temples, to 
which numerous votaries repair; some of them making pil-
grimages thither from very remote places. The pilgrims 
climb the sacred mountains with great difficulty, and are 
sometimes dragged up on their bended knees. Thiole, whole 
age or infirmities, or urgent bufinefses, will not allow of 
their joining these devout caravans, commemfion fome of 
their friends to bring them a large leaf filled with characters, 
and famped by the bonzes in a particular corner. The centre 
of this leaf is occupied by the image of the good Fo. On 
the veiments of the god, and around his figure, are traced 
a multitude of circles, intended for the following pur-
pofe. —The devotees of the god, whether male or female, 
dragging from their necks, or around their arms, a kind of 
chapel, composed of 100 beads of moderate fize, divided 
by threads which are much larger; and a bead, still bigger, 
in form of a small gourd, ornaments the top of the chapel. 
These beads they roll between their fingers, pronouncing 
the mysterious words "O-mi-to, Fo!" and each of these in-
vocations is accompanied by a genu-flection. When they 
have completed the number of 100, equal to that of the 
beads, they mark with a red froke one of the circles which 
form around the figure of the god Fo, on the leaf famped by 
the bonzes. This leaf becomes the register of all the prayers 
which they have repeated in the course of their lives. To 
verify its authenticity, the bonzes are, from time to time, 
invited to their houses, where they must atfref the number 
of circles marked with red frokes, and imprint their feals on 
the leaf. When any of them dies, this valuable memorial 
is carried at the funeral with the greatest solemnity, and depo-
fited in a small box closely flut and fealed: this they call 
"lou-in," or a passport for the other world; and it 
colls
costs a large sum of money to have all these formalities observed.

It has been already hinted, that the bonzes are peculiarly imitable to the progress of the Christian religion in China, Japan, &c. and that they have excited a spirit of persecution against the European missionaries, who have hitherto been chiefly the objects of the church of Rome. These strangers, they say, have introduced themselves into China for the purpose of invading it; the new doctrine they preach is calculated, as they pretend, to procure followers, and a number of partisans, sufficient to second their efforts, when European troops and fleets shall be ready to attack them; and sometimes they allege, that the missionaries persuade people to embrace their doctrine merely by the aid of bribery, and that they gain converts, and fix their attachment by lavishing gold and silver among them, of which they have great abundance, because they puftle the secret of imitating and counterfeiting these precious metals. By such and similar representations, they have checked the zeal, and counteracted the efforts of Christian missionaries.


It has been observed (see Embassy to China, vol. ii. p. 100.), that the likenesses are strong between the apparent worship of many of the priests of Fo, and that which is exhibited in churches of the Roman faith, that a Chinese, converted into one of the latter, might imagine the votaries he saw were then adoring the deities of his own country. On the altar of a Chinite temple, behind a screen, is frequently a representation which might serve for that of the Virgin Mary, in the person of "Shin-mao," or the sacred mother, sitting in an above with a child in her arms, and rays proceeding from a circle, which are called a glory, round her head, with tapers burning constantly before her. The long coarse gowns of the Ho-tangse, or priests of Fo, bound with cords round the waist, would almost equally unfit the friars of the order of St. Francis. The former live, like the latter, in a state of celibacy, reside together in monasteries, and impose occasionally upon themselves voluntary penance and rigorous abstinence.

BOO-HADIAK, in Geography. See AGAR.

BOO-Jemon, a river of Africa, in the province of Conti, which runs along the western side of the marsh which separates/bit between Bona and the ancient Hippo. Over this river is a bridge of Roman structure.

BOO-Scatter, a town of Africa, in the kingdom of Tunis, said by Shaw (Trav. p. 79.) to be built on the ruins of the ancient Utica, which lies.

BOOBERAK, a river of Africa, in the kingdom of Algiers, formed by the junction of the Nifah and Bugdorah. Its mouth, which is made up of a number of branches, is the eastern boundary of the province of Tittere.

BOOBY, a word of uncertain etymology, derived by Skinner from the Spanish bobo, foolish; but deduced by Junius from bowbard, an old Scotch word for a coward or contemptible fellow; denotes a dull, heavy, stupid person.

BOOBY'S island, in Geography, a small island in the West Indies, lying directly opposite to Molquito bay, at the S. E. extremity of the island of St. Christopher's, and more than half a league from it, off the north end of Nevis island. Also, a small island, supposed to be one of the islands called Prince of Wales's islands, extending from thence and Wallis's island, as far as New Guinea.

BOOBY, in Ornithology, the name of pelicanus solita in Catesby's Natural History of Carolina. The great booby of Catesby is a variety of pelicanus boojus. Brown booby of Latham, pelicanus fiber; lesser booby, pelicanus varieus; spotted booby, pelicanus maculatus.

BOODGE-BOODGE, or BOOGE-BOOGE, in Geography, a town of Hindoozzan, the present capital of the territory of Cutch, and residence of its raja. It is also called Boodz, and placed in a map, to which Mr. Remell refers, about 34 geographical miles to the E. or E. S. E. of the eastern branch of the Indus: 120 miles S. E. of Tatta, and about 200 W. of Ahmedabad.

BOODHI, Buddha, Budh, or Buddon, in Mythology, a deity very anciently and very generally worshipped in India. The name of this deity is variously expressed by different writers. In the Pali language, and among the Cingalese, his common name is Buddha. Mr. Chambers, in the Asiatic Researches, writes Buddon; and Paulinus (Muf. Borg.), Budha; and from these two appellations we may easily deduce the Budda or Utta of Beaufobre and Bochart, the Bod of the Arabsians, Bodd of Edrisi, Bodd of Clemens Alexandrinus, and Bonth of M. Gentil. The name is said to be an appellation, synonymous with sage or philosopher, and expressive of wildness. By Budda, says the learned Bryant, (Anah. Anc. Mythol. vol. iii. p. 575.) we are certainly to understand the idolatrous symbol, called by some nations Buddo; the same as Argus and Theba. In the mythology transmitted concerning it, we may see a reference both to the machine itself, and to the person preferred in it. In consequence of which we find this person also styled Bod, Budha, and Buddo; and in the west Butus, Battus, and Bautus. He was said by the Indians not to have been born in the ordinary way; but to have come to light indirectly through the side of his mother. By Clemens of Alexandria, he is called Butus; and in the history of this person, however varied, we may perceive a relation to the Arkite deity of the sea, called Poseidon; and to Arcadius and Dionysus; styled Bautus and Thebanus. Different learned men have supposed Buddha to have been the name with Noah, Mole, or Siphoas the 35th king of Egypt; and Mr William Jones supposed Buddha to have been the name with Sefec or Setkris, king of Egypt, who by conquest spread a new system of religion and philosophy from the Nile to the Ganges, about 1000 years before Christ. In order to reconcile these differences of opinion among the Hindoos, with regard to the time of Buddha's appearance, this learned writer agrees with Giorgi in supposing, that they have confounded two Bouddhas; the younger of whom established the new religion, which gave great offence to the braminis in India, and was introduced into China in the first century of our era; whereas the more ancient Bouddha preceded him by many centuries, and is referred by Sir W. Jones, after a variety of computations, to the year 1027 before Chiril. For want of adverting to this circumstance, he confounded the latter Bouddha with the Woden of the Goths. Mr. Chambers also remarked, that Pood or Pudon, which is the Siamene mode of pronouncing the Boodh of the Indians and Birmans, bears a striking resemblance to the Gothic Woden; and it is further suggested, that Boodh is the Dies Mercurii, the Wednesday, or Woden's day, of all Hindoos. But etymological reasoning, more especially when it interferes with chronology, is not sufficient to establish the identity of Boodh and Woden. According to the chronology of the Hindoos, which Sir W. Jones has minutely investigated and detailed, Boudha was the ninth "Avatar," or deficit of the deity, in his capacity of preverber, or the ninth incarnation of Vishnou, which was long antecedent to the existence of the deified hero of Scandinavia, who, according to some writers, was a contemporary of Pompey and Julius Cesar, and who is placed by the author of the Northern

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Antiquities,
BODDHA.

Antiquities, 70 years after the Christian era. Besides, the attributes of Boddh and Odin are very different. The deity, whose doctrines were introduced into Scandinavia, was a god of terror, and his votaries carried defoliation and the sword throughout whole regions; whereas the ninth Avatar (see Maurice's Hist. of Hindoostan, vol. ii. part 3.) introduced the peaceful olive, and appeared in the world for the purpose of preventing fanguny acts. He severely scourged the face of nature, or depriving any being of life, and is denounced the author of happiness. His place of residence is said to have been discovered at Boudha Gaya in Bengal, by the illustrious Amara, renowned amongst men; and according to an inscription in Sanscrit, found on a stone in this place, and translated by Mr. Willius, (Aristic Researches, vol. i. p. 234.) he caused an image of the supreme spirit Boodh-tha to be made, and worshipped it according to the law, with perfumes, incense, and the like; and he thus glorified the name of that supreme being, the incarnation of a portion of Vishnu: "Reverence be unto thee in the form of Boodh-tha! reverence be unto the lord of the earth! reverence be unto thee, an incarnation of the deity and the eternal one! reverence be unto thee, O God, in the form of the God of mercy, the dispeller of pain and trouble, the lord of all things, the deity who overcometh the sins of the Kales Yogo, the guardian of the universe, the emblem of mercy toward those who serve thee!" &c. As the doctrines of Boddh and Woden are different, and their deities are very remote, they must of course be different persons. The Buddha of the Hindoos is unquestionably, says Sir W. Jones, the Foe or Fo of China; and M. de Guignes, on the authority of four Chinese historians, affirms, that Fo was born about the year before Christ 1027, in the kingdom of Cashmir. Mr. Chambers, following M. Gentil, and followed by Paulinus, conceives, by a very forced train of etymology, the Fo or Fohi of the Chinese to be a corruption of Boodh-tha. Nor is the derivation of Tsautos, Toth, or Touth, the Egyptian name for Hermes from Boudhtha, less fanciful; and yet Fohi, the progenitor of the Chinese, a military tribe, whom the Hindoos call the Chandravans, or children of the moon, was, according to their Paranas or legends, Buddha, or the genius of the planet Mercury.

Among the various appellations by which the deity Buddha is known in several parts of the East, that of Godama is very common. This Godama, Gaudama, or Gotama, &c. as his name is differently expressed, is said to have been a philosopher, and is believed by the Birmans to have flourished about 2300 years ago; he is said to have taught in the Indian schools the heterodox religion and philosophy of Boddh. See Godama. The image that represents Boddh is called Gaudama or Goutum, which is now a commonly received appellation of Boddh himself: this image is the primary object of worship in all countries situated between Bengal and China. The lecteries of Gaudama are attended with those of Brahma for the honour of antiquity, and are certainly far more numerous. The Chins are in Ceylon are Boddhis of the purest source, and the Birmans acknowledge to have received their religion from that island, which they call Zehoo. From thence it was brought, as the Rahasans say, to Arracan, and it was then introduced into Ava, and probably into China; for the Birmans confidently assert, that the Chinese are Boddhis. Kempfer, speaking of the Budz, or Seaka, (Shaka, Shaky, Sjaka, or Sakyay, denoting, according to Paulinus, the cunning, or the god of good and bad fortune,) says, (Hiit. Japan. b. iv. c. 6.) "I have strong reasons to believe, both from the affinity of the name, and the very nature of this religion, that its author and founder is the very same person whom the Brahmans call Buddha, and believe to be the essential spirit of their Vishna (Vishnot) or their deity, who made his ninth appearance in the world under this name; the Peguers call him Saman Khantama." Where he treats concerning the introduction of Boddh into China, he says, (id. ibid.) "about the year of Chrift 518, one Darma, a great saint, and twenty-third successor in the holy fce of Seaka (Buddha), came over into China from Sutenicku, as the Japanese writers explain it, that is, from that part of the world, which his weltward with regard to Japan, and Taid, properly speaking, the first firm foundation of the Buddhaifm in that mighty empire." Others say, that the fect of Boddh was introduced into China in the year of our era 630, and that from China it proceeded to Jap, to Taid, to Japan, to Tainiun, China, and the remotest parts of Tarty.

Whatever may be the antiquity of the worship of Boddh, or Buddha, we cannot entertain no doubt of the wide extent of its reception and prevalence. In the isle of Ceylon, in the extensive Brahman empire, in the kingdoms of Siam and Cambogia, the prevailing religion is that of Boddh or Godama, and Mr. Chambers (Aristic Researches, vol. i. p. 162, &c.) has given very good reasons for believing that the worship of Boddh extended all over India, and was not rooted out by the Bradmaids in the Dececan, so lately as the 9th, or even the 12th century of the Christian era. From the history of Cashmir, presented to the fultan Abbar, on his first entrance into that kingdom, we learn, that Jelawok, one of its most powerful princes, tolerated the doctrine of Boddh; and that it was not till the reign of Nerkh the 59th prince, A.D. 343, that the Brahmins acquired the ascendency over the followers of Boddh, and burned down their temples. In Nepal the most ancient religion is that professed by a sect who call themselves "Baryeuf," and who seem to be worshippers of Boddh. In Narooara or Nangewal, the capital of the kingdom of Guzerat, we find that even after the Mahometan invasion, in the 11th century of our era, Edrihi, who wrote in the 12th century, informs us, that the people continued in the worship of the idol Boudha or Bud. This Arabic geographer adds, that the worship of the prince of this country, who reigned on the Malabar coast, with the title of Balhara, and whose dominions extended over Guzerat, and the greatest part, if not the whole of Kitiapur, was addressed to Boddh, who, according to St. Jerome and Clemens Alexandria, was the founder of the sect of the Gymnoophils, in like manner, says M. d'Anville, that the Brahmins were nbed to attribute their institution to Brahma. If the conjectures of Sir William Jones, relating to the inscriptions found at Mongheer, and on the pillar of Boddal, be well founded, the governing powers on the banks of the Ganges, as late as about the time of the birth of Chirih, were of the sect of Boudhtha; and however idle and ridiculous the legends and notions of the worshipers of Boudhtha may be, they have been in a great measure adopted by the Brahmins; but with this, all religious defects and extravagances much aggravated, rajahs and heroes being converted into gods, and impossibilities accumulated on improbabilities. From various authorities, to which we might refer, it sufficiently appears, that the worship of Buddha, or Boddh, has prevailed in several parts of India at a period prior to that of the Brahmins; and that this has been the cafe even so late as the 9th and the 12th centuries of the Christian era; and that this system forms the basis of that religion which the Brahmins have brought with them into the southern part of the peninsula of Hindoostan, into Madura, Tanjore, and Mylore. In those parts of India, and chiefly on the coast of Coromandel, and in Ceylon, the god Baudh, says M. Gentil, of whom, at present, they know no more in India than the name, was the object of worship;
but it is now totally abolished; except that there may be found some families of Indians, who have remained faithful to Braoath, and do not acknowledge the religion of the Brahmins; and on that account separated from and de-

fended by the other castes. It is generally allowed, that about the time of Chirii, the Brahmins gained a superiority over the worshippers of Buddha; and about 1100 years afterwards, we find them totally overpowering his doc-

trace in its native country; and perfecting his followers.

The Vedas, which are commonly supposed to be

the oldest books of the Brahmins, are of later date than the time of Buddha, as is evident from the mention which they make of that peripon. Asiatic Researches, vol. i. ii., and iv. Symes's Embassy to Ava, vol. ii. ch. 13. For a further account of the vocaries of Buddha, as well as the principles and rites of his worship; see Brahmanes, Go-

doma, Rahans, Samanakas, and Tirinanes. Seculno

Bierman empire, Ceylon, China, Cochinchina, Siam, 

BOODICOTTA, in Geography, a town of the peninsula of India, in the Mylof- country; 87 miles E. N. E. of Se-

riagapatam, and 25 E. S. E. of Bangalore. N. int. 12 50'. E. long. 78 20'.

BOOG, or BOOSH, a small island of Denmark, between the title V. Moen and Falster.

BOOGGOO, in Zoology, the species of Bason called Simia malayan, by Linneaus. See Mal-

mam.

BOOK, a writing composed on some point of knowl-

dedge by a person intelligible therein, for the instruction or

amusement of the reader.

The word is formed from the Saxon bec, which comes

from the Northern bech, of buchus, a beech or service-tree,

on the bark of which our ancestors used to write.

Book may be defined more precisely, a composition of

some man of wit or learning, designed to communicate,

to prove, or illustrate some science, art, truth, or invention.

Book is distinguished from pamphlet, or single paper, by

its great length; and from tome or volume, by its containing

the whole writing on the subject. Before makes this distinc-
tion between liber and codex; that the former denotes a single

book, the latter a collection of several; though, according to

Scipio Maffei, codex signifies a book in the square form; liber,

a book in the roll form. The primary distinction between

liber and codex seems to have been derived, as Dr. Heylin has

observed, from the different materials used for writing, among

the ancients. From the inside of the bark of a tree, used

for this purpose, and called in Latin liber, the name of liber

applied to a book was deduced; and from tablet, formed

from the main body of a tree, called caudex, was derived the

appellation of codex.

We say an old book, a new book; a Latin, a Greek

book; to read, to write, to publish a book; the preface, the

title, the dedication, the index of a book. To collate a book, is to see that it be perfect, and that none of the sheets be either wanting or transposed. Book-binders speak of

folding, faying, beating, pressling, covering, gilding, and

latttering of books. See Bookbinding.

A large collection of books is called a library. An inven-
tory of a library, in order to the reader’s finding any book,

is called a catalogue.

The history or notitia of books makes the first part, ac-

cording to some of the whole, of the literary science.—The

principal points of the notitia of a book are, its author, date,

printer, edition, version, comments, epistles, fucces, eul-

gogies, confusions, condemnation, supplication, adverbaries, vin- 

icators, continuators, and the like.

The history of a book is either of its contents, which is

given by analysing it, as is done by journalists and reviewers; or of its appendages, and accidents, which is the more immediate province of those called literators, and bibliothecarians.

The contents of a book are the matters delivered in it;

which make the province of the author. Of these there is

one principal matter, called the subject; in respect of

which the rest are only incidents.

The appendages of a book are, the title, preface, epistle

dedicatory, summaries, table of contents, index, and the

like, which are the proper province of the editor, unless per-

haps the title page, which is frequently usurped by the

book-seller.

In the composition of a book, there occur sentiments,

which are also the materials of it; method, the order where-
in these are disposed; and stile, or expression, which is the

language in which they are clothed.

The giving of histories, catalogues, and bibliothecers of

books, is said to have been first introduced by the Germans;

we may add, that they have held succeeded in them; and to

them the chief works of this kind are owing. 1. Alb. Fa-

bricius has given us the history of the Greek and Latin

books; Wohius, that of the Hebrew books; Boecker, of the

principal books in each science and faculty; Struvis, of the

books of history, law, and philosophy; the abbob Fa-

bricius, of the books of his own library; Lambecius, of those

in the Vienna library; Le Long, of the books of Scripture;

Mattaire, of the books printed before the year 1550; and

Morrhof, a general literary history of this kind, under the

title of Polybiblion. The various catalogues of choice lib-
aaries are useful and necessary for the same purposes: fo are

likewise the relations, &c. and the reviews which have been

periodically published. See Bibliotheca.

Books, as to the materials of, they were first written on

stones, witnesses the Decalogue given to Moses (which is the

oldest book we have any warranted account of); then, on

the parts of plants, c. gr, the leaves, chiefly of the palm-tree; the

rinds and barks especially of the tilla orphylma, and the E-

gyprian papyrus. By degrees, wax, then leather, were introduced, especially the skins of goats and sheep, of which at length, parchment was prepared: then lead came in use; also linen, filk, horn, and bai-ty, paper itself. See Paper.

The parts of vegetables continued long the common mat-

ter of books; innumerable that most of the names and terms

belonging to books, in most languages, are taken thence:

as the Greek libri, the Latin liber, codex, folium, tabula, and

the English book itself. We may add, that vegetable barks

appear still in some measure retained for books in certain

of the northern countries, as among the Calmuts Tartars, where

a library was discovered by the Ruffians, of an unusual form

as well as matter: the books were exceedingly long, but of

no breadth; the leaves very thick, and made of barks of trees,
fined over with a double varnish; the ink, or writing, being white on a black ground. Hist. Acad. R. Infer.

V. iii. p. 6.

Whatever were the materials used by the ancients for

their books, they were liable to be easily destroyed by the

damp, when hidden in the earth; and in times of war, de-

vastation, and rapacity, it was necessary to bury in the earth

whatever they wished to preserve from the attacks of fraud

and violence. Accordingly, it is well known that perons,

whole property was, thus exposed, concealed in this manner,

not only silver and gold, but wheat, barley, oil, and honey;

and also their garments, and their writings. With this

view, Jeremiah ordered the writings, which he delivered to

Baruch, to be put in an earthen vessel. See chap. xxxii.

In the same manner the ancient Egyptians made use of

earthen urns, or pots of a proper shape, for containing

what-
BOOK.

whatever they wanted to inter in the earth, and which, without such care, would have been soon destroyed. We need not wonder then, that the prophet Jeremiah should think it necessary to enclose those writings in an earthen pot, which were to be buried in Judah, in some place where they might be found without much difficulty on the return of the Jews from captivity. Accordingly, two different writings, or small rolls of writing, called books in the original Hebrew, were designed to be enclosed in such an earthen vessel; but commentators have been much embarrassed in giving any probable account of the necessity of two writings, one sealed, the other open; or, as the papyrus has been commonly understood, the one sealed up, the other left open for any one to read; more especially, as both were to be alike buried in the earth and concealed from every eye, and both were to be examined at the return from the captivity. In order to solve this difficulty, the ingenious Mr. Harmer (Obs. on Script. vol. iv. p. 4.) remarks, that though one of them is said to be sealed, it doth not follow that it was sealed in such a manner as not to be opened. Like modern deeds for the conveyance of land, it might have been sealed, though not with wax, yet, according to the present eastern manner, with ink, so as to be valid. Moreover, the word translated open, in reference to such evidence, or book which was open, is not the same word that is twice used by Nehemiah, ch. 3. 5.; nor is it a word, which signifies (1 Sam. iii. 7. 21. Dan. ii. 19, 20. x. 1.) the revealing of future events to the minds of men, by a divine agency; and it is particularly used in the book of Esther, (ch. viii. 17.) to express a book’s making known the decree of an earthly king. Consequently the open book of Jeremiah seems to signify, not its being then lying open or unrolled before them, while the other was sealed up; but the book that had revealed the will of God, to bring back Israel into their own country, and to cause buying and selling of houses and lands again to take place among them. This was a book of prophecy, opening and revealing the future return of Israel, and the other little book, which was ordered to be buried along with it, was the pur chase deed. By advertising to the different modes of writing in the East, we obtain a satisfactory interpretation of a passage in the book of Job, (ch. xix. 23, 4.) and a distinct view of the beautiful gradation which is lost in our translation: “O that my words were now written! O that they were printed (written) in a book! that they were graven—in the rock for ever!” In the East there is a mode of writing, which is designed to fix words in the memory, but the writing is not intended for duration. Accordingly, we are informed by Dr. Shaw, (Trav. p. 194.) that children learn to write in Barbary by means of a smooth thin board, lightly covered with writing, which may be wiped off, or renewed at pleasure. As many occurrences were effaced from the memory of the Arabs in the time of Job, as well as from their writing tables, as it now often happens in Barbary; Job expresses his wish not only that his words were written, and written in a book, from which they should not be blotted out, and graven in a rock, the most permanent mode of recording them, and much more effectual for perpetuating them than a book.

We find in Signior Caltagiratia’s account of the abbebos, a scheme for the making of a book, which from its impenetrable nature, he is for calling the book of eternity. The leaves of this book were to be of the abbebos paper, the covers of a thicker sort of work of the same matter; and the whole sewed together with thread from the same substance. The things to be commemorated in this book were to be written in letters of gold, so that the whole matter of the book being incombusible and everlastingly permanent against the force of all the elements, and subject to no changes from fire, water, or air, must remain for ever, and always preserve the writing committed to it. See PAPER.

Books, form of. The first books were in the form of blocks and tables, of which we find frequent mention in Scripture, under the appellation papyrus, which the Septuagint render rικον, q. d. square tabule; of which form the book of the covenant, book of the law, book, or bill of divorce, book of curfes, &c. appear to have been. As flexible matters came to be written on, they found it more convenient to make their books in form of rolls, called by the Greeks καρπος, by the Latinς volumina, which appear to have been in use among the ancient Jews as well as Grecians, Romans, Persians, and even Indians. And of such did the libraries chiefly consist, till some centuries after Christ. The form which obtains among us is the square, composed of separate leaves; which was also known, though little used, among the ancients; having been invented by Attalus, king of Pergamus, the same also who invented parchment: but it has now been so long in poleciion, that the old led manuscripts are found in it. Mentone an tells us, that of all the ancient Greek manuscripts he has seen, there are but two in the roll form; the rest being made up much after the manner of the modern books. See Book-binding.

The rolls, or volumes, were composed of several sheets, fastened to each other, and rolled upon a stick, or umbilicus; the whole making a kind of column, or cylinder, which was to be managed by the umbilicus, as a handle; it being reputed a kind of crime to take hold of the roll itself. The outside of the volume was called front; the ends of the umbilicus, were called cornua, horns; which were usually carved and adorned likewise with bits of silver, ivory, or even gold and precious stones. The title χειρογραφία was fluck on the outside. The whole volume, when extended, might make a yard and a half wide, and fifty long. Fabric. Bibl. Antiq. c. 10. 67. p. 607.

Sir John Chardin informs us, in a note on II. viii. 1. that the easterm people roll their papers, and do not fold them, because their paper is apt to fret. Whilstathe Egyptian papyrus was in common use, its brittle nature made it proper to roll up what they wrote: and as this had been a customary practice, many continued it when they used other materials, which might very safely have been treated in a different manner. This method of rolling up their books is referred to in the New Testament; and that they were of the same form much more anciently, we learn from Jer. xxxvi. 2. Pf. xi. 7. &c. &c.

It is customary not only to wrap up Oriental books and letters which are rolled up, in an elegant and closely covering; but to inscribe words on these coverings, which give a general notion of their contents. This practice of writing on the outside of the case of a letter, or book rolled up, seems to be at least as ancient as the time of Chryfofom, as we learn from a note of Lambert Bos on Pf. xxxix. 7. as it occurs in the LXX. v. 40, in our version. Chryfofom remarks, that they call a wrapper (πακρος) the χειρογραφία, which is the word the Septuagint translators make use of to express the Hebrew word we translate volume: “In the volume of the book it is written of me.” The learned father seems to suppose, that there was written on or in the covering of the former volume, a word or words which signified the “coming of the Messiah.” But Chryfofom would hardly have thought of such an interpretation, if it had not been frequently done at Constantinople in his time, or by the more eastern princes that had business to transact with the Greek emperors, or been known to have been practised.
practised before those times among the Jews. Chrysolomon lived in the 4th century. Aquila, who is thought to have lived above 100 years sooner, and is allowed to be a most close translator of the Hebrew, uses, according to Boe, the same word καὶ τις, or wrapper, to express the Hebrew word םוֹתָלָה. He therefore supposed that what was written, to which this passage refers, was written on the covering or wrapper of the sacred books. This explanation fuggels a much more agreeable mode of rendering the word than our English term volume; since every ancient Hebrew book was a volume, or roll, and consequently the passage merely expresses: "In the book it is written of me." But if we understand it of the safe in which their books were wrapped up, the thought is not only clear and distinct, but very energetic, and amounts to this, that the sum and substance of the sacred books is, that "the Meilish cometh;" and that those words accordingly might be wrote or emblazoned, with great propriety, on the wrapper, or safe in which they were kept.

Another translation renders the word τὸ τόπος, which intimates that the motto was inscribed on the cylinder, round which books of this form were wont to be rolled. In this case, it was probably written on the side of that part of the cylinder which reached beyond the parchment, linen, or whatever material was used, and which was convenient enough for exhibiting, in brief, what the purport of the volume was. Mr. Harmer (Obf. on Script. vol. iv. p. 11.) fuggels, that the circle of gold, with the name of one of our Saxon princes upon it, and ornamented after the manner of those times, might be designed to safe the end of the cylinder, or one of the cylinders, on which some book belonging to that monarch, or relating to him, was rolled; or on which ancient piece of gold an engraving is given in the seventh volume of the Archologia, or Transactions of the Antiquarian Society. This sort of ong to those cylinders used to be called the "As tell." To the form of books belong the economy of the inside, or the order and arrangement of points and letters into lines and pages, with margins, and other appurtenances. This has undergone many varieties: at first, the letters were only divided into lines, then into separate words; which, by degrees, were noted with accents, and divided by points and slants into periods, paragraphs, chapters, and other divisions. In some countries, as among the Orientals, the lines began from the right, and ran to the left; in others, as in Northern and Western nations, from the left to right; others, as the Grecians, followed both directions alternately, going in the one, and returning in the other, called boyaphroded. In the Chinese books, the lines ran from top to bottom. Again, the page in fome is entire, and uniform; in others, divided into columns; in others, distinguished into lines and notes, either marginal, or at the bottom; usually it is furnished with catchwords and catchwords; also with a register to discover whether the book be complete. To these are occasionally added the apparatus of summaries, or fide notes; the embellishments of red, gold, or figured initial letters, head-pieces, tail-pieces, ligatures, schemes, maps, and the like. The end of the book now denoted by finis, was anciently marked with a Σ, called corinis, and the whole frequently washed with an oil drawn from cedar, or citron chips, burned between the leaves to preferve it from rotting. There also occur certain formula at the beginning and end of books; as among the Jews, the word בָּרָו, open foris, which we find at the end of the books of Exodus, Levitical, Numbers, Ezekiel, &c. to exhort the reader to be courageously, and proceed on to the following book. The conclusions were also often guarded with imprecaions against such as should falsify them; of which we have an instance in the Apocryphal. The Mahometans, for the like reason, place the name of God at the beginning of all their books, which cannot fail to procure them protection, on account of the infinite regard had among them to that name, wherever found. For the like reason it is, that divers of the laws of the ancient emperors begin with the formula, In nomine Dei. At the end of each book the Jews also added the number of verses contained in it, and at the end of the Pentateuch the number of sections; that it might be transmitted to posterity entire. The Malorctes and Mahometan doctors have gone farther; so as to number the several words and letters in each book, chapter, verse, &c. of the Old Testament, and the Alcoran. See Alcoran, Bible, Massora, &c.

The kinds and denominations of books are various. Books, with regard to their use and authority, may be divided into human and divine, also called sacred and inspired books.

Books, Sybilline, those composed by certain pretended prophets of these, deposited in the Capitol, under the care of Donuviri. See Sybils.

Books, Canonical, those received and allowed by the church as parts of holy scripture. Such are the books of the Old and New Testament, as commonly bound up together. See Canon and Bible.

Books, Apocryphal, those excluded out of the canon, yet received and read in some churches. See Apocryphal.

Books, Authentical, those which are decisive, and of authority: such, in the civil law, are the Code, Digest, &c. in our law, the Statutes, &c. Bacon de Augm. Sci. i. 8. c. 3.

Books, Auxiliary, those left off, yet of use, as subfervient to the others: as in the study of the law, books of Inlinutes, Formula, Maxims, Reports, &c.

Books, Elementary, those which deliver the first principles of sciences: such are those under the titles of Rudiments, Methods, Grammars, &c. by which they stand and are distinguished from books of a superior order, which aim at making further advances in the sciences.

Books, Library, such as are not ordinarily read over, but turned to, and consulted occasionally; such are dictionaries, &c.

Books, Exteries, those intended for the use of popular and ordinary readers.

Books, Aeromannic, those containing more secret and sublime matters, calculated for adepts and proficient in the subject.

Books, Public, the records of past times and transactions kept by public authority.

Books, Church, or Ecclesiastical, those used in the public offices of religion.

Books, again, with regard to their scope and subject, may be divided into historical, those which relate facts, either by nature or mankind; dogmatical, those which lay down doctrines, or general truths; miscellaneous, those of a neutral kind, containing both facts and doctrines; bisterior-dogmatical, those which only revere doctrines, or, as milk, indicate the arguments by which they are proved, as Mallet's Geometry; scientifich-dogmatical, those which not only recite the doctrines, but demonstrate them, as Euclid's Elements. Wolf. Phil. Rat. § 3 c. 1. § 744. 750. 751, &c.

Books, Pontifical, among the Romans, were those appointed by Numa to be kept by the pontiffs maximus; describing
cribing all the ceremonies, sacrifices, feasts, prayers, and other religious matters, with the manner, and circumstances, whereby each was to be celebrated; these were also called *indigiamata*, as containing the names of all the gods and the occasions, and formula of invoking each. Liv. i. p. 23.

**Books, Ritual.** Those which directed the order and manner of founding, building, and consecrating cities, temples, and altars; the ceremonies belonging to walls, gates, tribes, curias, camps, and the like.

Those, *Augsular*, called by Cicero *reconditi*, were those wherein the *Legends* of the founding *Futurity*, from the flight and chattering of birds, was contained. Cic. Orat. de domo fuæ ad pontif., Serv. ad Æn. l. 5, v. 738. Lomei, de Bibl. c. 6.

Books, *Aruspicin*, those wherein the mysteries of divining from the entrails of victims are preferred.

Books, *Achænetic*, those wherein the ceremonies and discipline of Achæron were contained; sometimes also called *libri Etrusci*, as being supposed to have been composed by Tages the Hetrurian; though others pretend, that he had received them from Jupiter himself: some suppose these to have been the same with the *libri futuriales*, others with the *libri aruspiciani*. Serv. ad Æn. l. 8, v. 89. Lomei, ubi supra.

Books, *Fulgaral*, those written touching thunder and lightning, and their interpretation. As that composed by the Tufcan nymph Biggs, preferred in the temple of Apollo. Serv. ad Æn. l. 6, v. 72.

Books, *Fatai*, those wherein the ages, or terms of the life of men were written, according to the Hetrurian discipline. Those were condemned by the Romans in all public calamities; and instructions taken from them, how to expiate the offended deities. Confer. de Dic. Nat. c. 11.

Books, *Black*, those which treat of necromancy, and witchcraft; or those which are printed in the old black letter, the Celtic character, now only retained by the Germans. The same denomination is also given to some other books, on account of the colour of their backs, or the disfigurement of their contents; whence also *Red-book* and *Donkey-book*.

Books, *Good*, in the common usage, are those of devotion and piety, as dogmatic, meditations, prayers, &c. Vide *Scafitab. Chor. tom. i. p. 155. idem, tom. iii. p. 327.*

A *good book* in the bookseller's language, is a saleable one; in the language of the curious, a scarce one; in that of men of fensé, an useful and instructive one.

Among five principal things which Rabbi Akiba recommended to his son, one was, that if he studied the law, he should take care to do it in a *good book*, lest he should be obliged to unlearn all again. Vide Cren. de Furib. Libr. See also farther, on the head of judging and chusing of Books.

Books, *Spiridinal*, those which treat more expressly on the spiritual or Christian life, and their exercises, as to contemplation, &c.

Books, *Proprieties*, such as do not treat of matters of religion.

Books, with regard to their authors, may be divided into *anonymus*, those without any author's name; *cryptonymus*, those whose authors' names are concealed in some anagram, or the like; *pselonymus*, those which bear false names of authors; *polibonum*, those published after the author's death; *genuine*, those really written by the persons whom they pretend for their authors, and still remaining in the state wherein they were left by them; *spurious*, or *suppositi-
BOOK.

where it makes four leaves; in 8°, where eight; in duode-
cime, where twelve; in 16°, where sixteen; in 24°, where twenty-four.

Books, with regard to circumstances and accidents, may be divided into two, those which have perished by the injuries of time, or the malice or zeal of enemies. Such are divers even of the ancient books of Scripture, written by Solomon and others of the prophets. Fabr. Cod. Plead. Vet. Telv. tom. ii. p. 171. p. 237. Books promised, those which authors have given expectations of, which they have never accomplished. Jahn. ab Almeloveen has given a Bibliotheca of books promised, but till latent, or not published. Books fictitious, those which never existed; to which may be added divers feigned titles of books. Loeoeh has published a great number of plans, or projects of books, many of them good and useful enough, if there were but books written corresponding to them. M. Dugon has a whole volume of schemes or projects of books, containing no less than 5000.

Books in Ana. Anti, &c. See Ana, Anti, &c.

Books, the scope or design of; is various; that of some is to trace the origin of things discovered; of others, to fix and establish some truth, or raise some doctrine to a higher pitch or subtlety; of others, to remove some scruple, or prejudice, which had before obtained, or fix more accurate and precise ideas of things; of others, to explain the names and words used in different nations, ages, and sects; of others, to improve our knowledge of facts, and events, and shew the order and ways of Providence; lastly, others aim at divers, or all of these ends.

Books, the nes of; are numerous; they make one of the chief instruments, or means of acquiring knowledge: they are the repositories of laws, and the vehicles of learning of every kind; our religion itself is founded on books: Without them, "Fays Bartholin," "God is silent, justice dormant, physic at a stand, philosophy lame, letters dumb, and all things involved in Camminian darkens." De Libr. Legend. Diff. i. p. 5.

The eulogiums which have been bestowed on books are infinite: they are represented "as the refuge of truth, which is banished out of conversation; as standing censellers, and preachers, always at hand, and always interested; having this advantage over oral instructors, that they are ready to repeat their leson, as oft as we please." Books supply the want of matters, and even, in some measure, the want of genius and invention; and can raise the dulled persons, who have memory, above the level of the brightnest without them. An author who wrote not indecently, though in a barbarous age, fums up all their praisef Vide Lucas de Penna ap. Morhof. Polyhist. lib. i. cap. 3. p. 27. "Liber est lumen cordis, speculum corporis, virtutum magistri, vitiorum depulor, corona prudentum, comes inimici, domelicus amisus, congesto talentis, collega & confidarius praedentis, myrothecum eloquentiae, hortus plenus-infructus, pratum floribus diffumum, memory penes, vita recordationis; vocatus properat, jujus felinea, desperato eft, nuncam non morigerus, nogetus concellum reprehendit; arca revelat, obtura illuflrat, ambigua certiorat, perplexa refolvit, contra adverfam fortunam derobam, lecundum moderato, opes adaduet, jacturam propulsat," &c.

Perhaps their greatest glory is, the election borne them by many of the greatest men in all ages; M. Cato, the elder Pliny, the emperor Julian, and others, are on record for a very extraordinary devotion to books. This last has perpetuated his passion by some Greek epigrams in their praise. Richard Bury, bishop of Durham, and lord chancellor of England, has a treatise expres on the love of books. Philobiblion, Sive de Amore Librorum. Vide Plin. Epift. vii. lib. iii. Vol. IV. Cato's attachment to books may be observed in the following paragraph.

M. Catonem vidi in bibliotheca sedentem multis circum-
susum Stoicorun libris. Exst entum, ut fcri, in eo inaequali aviditas legendi, nec fattari poterat: quique qui, de repreheni-
fione veli inamnem reformandam, in ipso cura tolerat legere, spee dum fennus cogetur, nihil operae reipublice detra-
hens." Vide Cic. de Divin. lib. iii. n. 11. See also Cic. Orat. pro Arch. tom. iv. p. 2182.

Books, the ill effects objected to, are, that they employ too much of our time and attention; engage us in pursuits of no use to the commonwealth, and indispose us for the functions of civil life; that they render men lazy, and prevent their exerting their own talents, by furnishing them, on every occasion, with things that are the productions of others; and that our natural lights become weakened and extinguished, by inuring ourselves to see only with foreign lights: besides, that ill men are hereby furnished with means of poisoning the people, and propagating superstition, immorality, enthufiasm, or irreligion, which will always spread faster, and be received more greedily, than leflons of truth and virtue. Many other things are added concerning the emptines of books, and the errors, fables, and follies they are fraught with: which, together with the multiplicity and perplexity of them, are such, that it may seem easier to discover truth in the nature and reason of things, than in the uncertainty and confusion of books. Add, that books have turned the other instruments of knowledge out of doors, as experiments, observations, furnaces, and the like, without which the natural sciences can never be cultivated to purpose; and that, in mathematics, books have so far superseded the exercise of invention, that the generality of mathematicians are now contented to learn the solution of problems from others; which is to relinquish the chief end of their science; since what is contained in mathematical books is properly the history only of mathematics, not the science, art, or talent of solving questions; which is hardly to be had from books, but only from nature and meditation.

Books, for the art of rewriting, or compounding, we have much fewer helps and instructions than for the art of speaking; though the former be the more difficult of the two; as a reader is not so easy to be imposed upon, but has better opportunities of detecting faults than a hearer. A great car-
dinal, indeed, reduces an author's business to a few heads; were they but as easily practised as preferred; "Let him consider who it is he writes, what, how, why, and to whom." Auguf. Valer. de Cand. in edend. lib. The conditions required in a book are, according to Selden, "solidity, perperecity, and brevity;" the first will be best attained, by keeping the piece long by us, often reviewing and correcting it by the advice of friends: the second, by disposing the sentiments in a due order, and delivering them under proper and usual expreptions: the third, by throwing every thing aside that does not immediately concern the subject. Were these rules observed, it would scarcely be possible for any, except an angel from heaven, to write many books. "Vix totidem quot thebarum portae vel divitis oftii Niti." The custom is much altered since the times of the ancients, who carried their ferupoloufets into what relates to the composition of books beyond all that has been written expressed: to annum it was the idea they formed of a book, that nothing would suffice less than its being a treasure: the

neuds saepe postulat, non libros?" no labour, no affiduity and exactnes, were thought enough to fit a work for the public view: every sentiment and expreption were to be maturely weighed, and turned on all sides; and not suffered to pass, uncles every word were a pearl, and every page beft with 5 G
Books, for the origin of, we have nothing that is clear: the books of Moses are doubtless the oldest of all that are extant; but there were books before them, for Moses cites several. A book of Enoch is cited in the epistle of Jude, v. 14. and 15. from which some endeavor to prove the reality of ancient Jewish writings; but the book cited by that apocryphal writer is generally allowed both by ancient and modern critics to be spurious. See Bible.

Of prophetic books, the oldest extant are Homer's poems, which were even so in the time of Sextus Empiricus; though we find mention in Greek writers, of about seventy others prior to Homer; as Hesiod, Orpheus, Daphnis, Horus, Linus, Mæseus, Palamedes, Zoroaster, &c., but of the greater part of these, there is not the least fragment remaining; and of the others, the pieces which go under their names are generally held by the learned supposititious. F. Hardouin goes farther: charging all the ancient books, both Greek and Latin, except Cicero, Pliny, Virgil's Georgics, Horace's Satires and Epistles, Herodotus, and Homer, as spurious, and forged in the thirteenth century, by a club of persons under the direction of one Severus Arcanitus. Feb. Bib. Grac. lib. i. cap. 1. § 1. 6, tom. i. Hardouin de Num. Herod. in Proph. Act. Erud. I. p. 1710. p. 70.

Among the Greeks, it is to be observed, the oldest books were in verse, which was prior to prose; Herodotus's history is the oldest book extant of the profaic kind. Strabo. Geog. lib. i. Heueman. Via ad Hift. Liter. § 20. p. 50. § 21. p. 52.

Books, the multitude of, has been long complained of: the complaint is as old as Solomon, who lived three thousand years ago; they are grown too numerous, not only to procure and read, but to fee, to learn the names of, if even to number. England has more to fear on this score, than other countries; since, besides our own produce, we have, for some years past, drained our neighbours. However, as bishop Caramell's scheme misfitted, which was to write about a hundred volumes in folio, and then prevail on the civil and military powers to oblige all their subjects to read them, we need not much regret the multitude of books.

In reality, there are few of the immense number of books which deserve seriously to be studied: for the rest, part of them, like this, are only to be occasionally consulted, and the rest read for amusement. A mathematician, for instance, ought not to be entirely ignorant of what is contained in the mathematical books: but then a general knowledge is sufficient, which may easily be had by running over the chief authors; out of whom references may be made, directing to the places where they may be found, when wanted. For there are many things which are much better preferred in books than in the memory: astronomic observations, tables, rules, theorems, proportions, and in fine, whatever does not spontaneaously adhere to the memory, when once known. For the less we crowd that faculty, the reader and hearer will the genius remain for inverting.

Other books may be valuable in themselves, for some special purpose, or in some peculiar science, but are not fit to be perused except by those who are engaged in that particular science, or business. To what use is it for a divine, or a physician, or a tradesman, to read over the huge volumes of reports of adjudged cases in the law? Or for a lawyer to learn Hebrew and read the Rabbins, unless his inclination leads him, and his leisure allows him to employ himself in this way? For improvement of knowledge and faving of time, it is of great importance for young persons to have the most proper books for his reading, recommended by a judicious friend.

Books of importance of any kind, and especially complete treatises on any subject, should be first read in a more general and curiously manner, to learn in some degree what the treatise promises, and what you may expect from the writer's manner and style. For this purpose let the preface be read, and the table of contents, if there be any, before this first survey of the book. By this means you will not only be better fitted to give the book a first reading, but be much assisted in a second perusal of it, which should be done with greater attention and deliberation, and you will learn with more ease and readiness what the author professes to teach. In reading it will be useful to mark what is new or unknown to you before, and to review those chapters, pages, or paragraphs. Unless a reader has an uncommon and mott recentive memory, we may venture to affirm, that there is scarcely any book or chapter worth reading once, that is not worthy of a second perusal. At least it will be proper carefully to review all the lines or paragraphs which were previously marked, and to recollect the fections which were thought truly valuable. There is another reason why it will be useful to take a superficial and curiously survey of a book, before we sit down to read it, and to dwell upon it with judicious attention; and that is, that there may be several difficulties in it, which we cannot easily understand and resolve at the first reading, for want of a fuller comprehension of the author's whole scheme. Many such difficulties would be unravell'd when we have proceeded farther in such books, or would vanish themselves upon a second reading.

What we cannot thoroughly understand at first may be noted down as matter of subsequent consideration and inquiry, if the pages that follow do not happen to strike a complete light on those which went before. In perusing books that treat of subjects of national, moral, or divine science, it should be considered that it is our business, not merely to know the opinion of the author, for this is but the mere knowledge of history; but truly to reflect, whether his opinions are just or not, and to improve our own knowledge of the subject by a careful investigation of it. With this view we should deal freely with every author whose works we read, and yield our assent only to evidence and just reasoning. If a writer on any particular subject, to which your attention is directed, maintains sentiments similar to your own, but does not explain his ideas, or prove his opinions to your satisfaction, mark his defects, or faults, and endeavour to do it better, either in the margin of your book, or rather on some papers of your own, e. g. When the author is obscure, enlighten him; where he is imperfect, supply his deficiencies; where he is too concise, amplify, and let his notion, in a fairer view; where he is redundant, mark the paragraphs that ought to be retrenched; where he trifles and indulges in impertinence, abandon those passages, or pages; where he argues, observe whether his reason be conclusive; if the conclusion be true, but the argument weak, endeavour to confirm it by better proofs; where he deduces any propositions obscurely, or doubtfully, make the justness of the inference to appear, and add further inferences or corollaries, if such occur to your mind; where you suppose he is mistaken, propose your objections, and correct his errors; what he writes so well as to approve itself to your judgment, as both just and useful, treasure up in your memory, and count it a part of your intellectual gains.

If the method of a book be irregular, reduce it into form, by
BOOK.

by an analysis of your own, or by hints in the margin: if those things be hoarded together, which should be separated, distinguish and divide them. If several things relating to the same subject be scattered through various parts of the same treatise, let them be brought together into one view, by suitable references; or if the matter of a book be really valuable and deserving the labour, you may arrange it in a better method, reduce it to a more logical scheme, or abridge it into a letter form. All these practices will have a tendency to advance your own skill in logic and method, to improve your judgment in general, and to give you a more comprehensive survey of that subject in particular. When you have finished the treatise, with all your observations upon it, recollect and determine what real improvements you have made by reading that author. If a book have no index, or good table of contents, it is useful to make such as you are reading it; taking notice merely of those parts which are new and well written, and well worthy of remembrance, or review. If the writer be remarkable for any peculiar excellencies, or defects in his style, or manner of writing, attentively observe them, and whatever ornaments or blemishes occur in the language, or manner of the writer, you may make just remarks upon them. One book perused in the manner now proposed, will tend more to enrich the understanding, than flimming over the surface of 20 authors.

There are many who read," says the excellent author of whole useful observations we are now availing ourselves, (see Watts's Improvement of the Mind) "with confluxion and diligence, and yet make no advances in true knowledge by it. They are delighted with the notions which they read, or hear, as they would be with stories that are told, but they do not weigh them in their minds as in a just balance; in order to determine their truth, or falsity; they make no observations upon them, or inference from them. Perhaps their eye slides over the pages, or the words slide over their ears, and vanish like a repast of evening tales, or the shadows of a cloud flying over a green field in a summer's day; or, if they review them sufficiently to fix them in their remembrance, it is merely with a design to tell the tale over again, and to shew what men of learning they are. Thus they dream out their days in a course of reading without real advantage. As a man may be eating all day, and for want of digestion is never nourished; so these endless readers may cram themselves in vain with intellectual food, and without real improvement of their minds, for want of digesting it by proper reflection."

"Never apply yourselves," says the sage writer, "to read any human author with a determination, before-hand, either for or against him, or with a settled resolution to believe, or disbelieve, to confirm, or oppose whatsoever he faith; but always read with a design to lay your mind open to truth, and to embrace it wherever you find it, as well as to reject every falsehood, though it appear under no fair disguise. How unhappy are those men, who seldom take an author in their hands, but they have determined before they begin, whether they will like or dislike him! They have got some notion of his name, his character, his party, or his principles, by general conversation, or perhaps by some slight view of a few pages; and having all their own opinions adulterated before-hand, they read all that he writes with a prejudice either for or against him: unhappy those who hunt and purvey for a party, and ferape together out of every author, all those things, and those only which favour their own tenet, while they omit and neglect all the rest! The author subjoins an useful caution; and wishes not to be understood, as perceiving a person to live without any settled principles, by which to judge of books, men, and things, or to be always doubting about his foundations. Yet having settled, upon good grounds, the most necessary and important principles of science, prudence, and religion, we should read, with a just freedom of thought, all those books which treat of such subjects as may admit of doubt, or reasonable dispute. When we peruse those authors who defend our own settled sentiments, we should not hastily conclude that all their reasonings are just and solid; nor eagerly embrace all their lesser opinions, because we agree with them in the greater. When we read those authors who oppose our most certain and established principles, we should be ready to receive any information from them in other points, and not abandon every thing they say, though we are well fixed in opposition to their main object:

"Seize upon truth where'er it's found, Amongst your friends, amongst your foes, On Chriftian, or on heathen ground; The flower's divine where'er it grows; Neglect the prickers, and assume the rose."

Upon the plan of reading above stated and recommended, a few books well chosen, and thoroughly studied, may suffice. It may be added, that a knowledge is naturally advantageous, and as every man ought to be in the way of information, even a superfluity of books is not without its use, since hereby they are brought to obtrude themselves on us, and engage us when we had least design. This advantage, an ancient father observes, we owe to the multiplicity of books on the same subject, that one falls in the way of one man, and another befits the level, or the apprehension, of another. "Every thing that is written," says he, "does not come into the hands of all persons: perhaps some may meet with my books, who may hear nothing of others which have treated better of the same subject. It is of service, therefore, that the same questions be handled by several persons, and after different methods, though all on the same principles, that the explications of difficulties, and arguments for the truth, may come to the knowledge of every one, by one way or other." Add, that the multitude is the only security against the total loss or destruction of books: it is this that has preferred them against the injuries of time, the rage of tyrants, the zeal of peripaters, and the ravages of barbarians; and handed them down, through long intervals of darkness and ignorance, safe to our days. "Solaque non movit hanc monumenta mori." Bac. de Augm. Sc. lib. i. Augufi. de Trin. lib. i. cap. 3. Barthol. lib. cit. Diff. i. p. 8, &c.

Books, the curiosity of, is an evil much more to be lamented, in the survey of past ages, than their multitude at any later period. Before the art of printing was invented, the trouble and expense of procuring copies very much retarded the progress of literature. The universal ignorance that prevailed in Europe, from the seventh to the eleventh century, may be ascribed to the scarcity of books during that period, and the difficulty of rendering them more common, concurring with other causes arising from the state of government and manners. The Romans wrote their books either on parchment, or on paper made of the Egyptian papyrus. The latter, being the cheapest, was of course the most commonly used. But after the Saracens conquered Egypt, in the seventh century, the communication between that country and the people settled in Italy, or in other parts of Europe, was almost entirely broken off, and the papyrus was no longer in use among them. They were obliged on that account to write all their books upon parchment; and as the price of that was high, books became extremely rare and of great value. We may judge of the scarcity of materials for writing them from the circumstance.
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There still remain several manuscripts of the 8th, 9th, and following centuries, wrote on parchment, from which some former writing had been erased, in order to substitute a new composition in its place. Thus, it is probable, several of the works of the ancients perished. A book of Livy or of Tacitus might be erased, to make room for the legendary tale of a faint, or the superstitious prayers of a misfial. As the want of materials for writing accounts for the loss of many of the works of the ancients, and for the small number of MSS. previous to the 11th century, many facts prove the scarcity of books at this period. Private persons seldom possess any books whatever; and even monasteries of note had only one missal. Towards the end of the seventh century, even in the papal library at Rome, the number of books was so inconsiderable, that pope St. Martin requested Sanctamond, bishop of Maastricht, if possible, to supply this defect from the remote parts of Germany. In the year 855, Lupus, abbot of Ferrières in France, lent two of his monks to pope Benedict III. to beg a copy of Cicero de Oratore and Quintilian’s Institutes; “for,” says the abbot, “although we have part of these books, there is no complete copy of them in all France.” At the beginning of the tenth century books were so scarce in Spain, that one and the same copy of the bible, Jerome’s epistles, and some volumes of ecclesiastical offices and martyrologies, often served several different monasteries. Among the constitutions given to the monks of England by archbishop Lanfranc, in 1072, the following injunction occurs: At the beginning of Lent, the librarian is ordered to deliver a book to each of the religious, for the perusal of which a whole year was allowed; and at the returning Lent, those monks who had neglected to read the books they had respectively received, are commanded to prostrate themselves before the abbot, and supplicate his forgiveness. In 1299, John de Pontiffara, bishop of Winchester, borrows of his cathedral convent of St. Swithin, at Winchester, “libibam bene glossatam,” that is, the bible, with marginal annotations, in two folio volumes; but gives a bond for the return of it, drawn up with great solemnity. For the bequest of this bible to the convent, and 100 marks, the monks founded a daily mafs for the soul of the donor. If any person gave a book to a religious house, he believed, that so valuable a donation merited eternal salvation, and he offered it on the altar with great ceremony. The prior and convent of Rochester declare, that they will every year pronounce the irreconcilable sentence of damnation on him, who shall purloin or conceal a Latin translation of Ariosto’s Poetry, or even obliterate the title. Sometimes a book was given to a monastery, on condition that the donor should have the use of it for his life; and sometimes to a private person, with the reservation that he who receives it should pray for the soul of his benefactor. In the year 1255, Roger de Infula, dean of York, gave several Latin bibles to the university of Oxford, on condition that the students who perused them, should deposit a cautionary pledge. The library of that university, before the year 1290, confisted only of a few tracts, chained or kept in chests, in the choir of St. Mary’s church. Among the statutes of St. Mary’s college at Oxford, in 1446, one is, that no scholar should occupy a book in the library above one hour, or two hours at most, so that others shall be hindered from the use of the fame. The famous library established in the university of Oxford by Humphrey duke of Gloucester, a munificent patron of literature, contained only 600 volumes. About the beginning of the 14th century, there were only four clasicles in the university of Paris, which were single copies of Cicero, Ovid, Lucan, and Boethius.

The price of books became so high, that perfons of a moderate fortune could not afford to purchase them. In the year 1174, Walter, prior of St. Swithin’s at Winchester, purchased of the monks of Dorchester, in Oxfordshire, Bede’s homilies and St. Aulins’s psalter for twelve pieces of barley and a pail, on which was embroidered in silver the history of St. Birinus converting a Saxon king. About the year 1250, a copy of John of Meun’s “Roman de la Rose” was taken before the palace-gate at Paris for 40 crowns, or 53l. 6d. The counts of Anjou paid, for a copy of the histories of Haimon, bishop of Haberlandt, 200 liepms, five quarters of wheat, and the fame quantity of rye and millet. Even so late as the year 1451, when Louis XI. of France borrowed the works of Rhusis, the Arabian physician, from the faculty of medicine at Paris, he not only deposed by way of pledge a considerable quantity of plate, but he was obliged to procure a nobleman to join with him as surety in a deed, binding himself under a great forfeiture to restore it. Many other instances might be cited, in order to shew how scarce books were at the period to which we now refer, and with what difficulty, and at what extravagant prices, copies of them were procured; and therefore we can be at no loss in accounting for the extreme ignorance that prevailed. But when, in the 11th century, the art of making paper was invented, and more especially after the manufacture became general, the number of MSS. increased, and the study of the sciences was wonderfully facilitated. Indeed, the invention of the art of making paper, and the invention of the art of printing, are two very memorable events in the history of literature and of human civilization. It is remarkable, that the former preceded the first dawning of letters and improvement in knowledge, towards the close of the eleventh century; and the latter ushered in the light which spread over Europe at the era of the reformation. Murat, Antiqu. Ital. vol. iii. vol. ix. Mem. de l’Acad. des Infcrip. tom. ix. Hill, Lit. de France, par des Religieux Beneficiums, tom. vii. Naudé Addit. a Philofoire de Louis XI. par Comines, ed. Frevet, tom. iv. Robertson’s Hist. Ch. v. vol. 1. Wharton’s Eng. Poetry, vol. i. diff. 2.

BOOKS, to form a judgment of. Those who have treated of the subject, direct us to observe the title, the author’s or editor’s name, the number of the edition, the place where and the year when it is printed (which in old books is frequently marked at the end), and the printer’s name, especially if it be a celebrated one, proceed then to the preface, and index of contents, and look for the author’s design, and the occasion of his writing; consider also his country (each nation having its peculiar genius), which may sometimes be learned from the dedication; if his life be annexed, run it over, and note his profession, what rank he was of, and any thing remarkable that attended his education, studies, conversation, or correspondences with learned men; not forgetting the eulogies which have been given to the author, which often occur at the beginning, or even any critique or censure, especially if made by a man of judgment. If the preface does not give an account of the method of the work, run briefly over the order and disposition of it, and note what points the author has handled; observe whether the things and sentiments he produces be true and vulgar, or solid, and fetched from greater depths. Note, whether he go in the common road, or make any innovation, and introduce any new principle.

But it is a small number of books we have opportunity of thus judging of by perusing them; besides, when we have read a book over, the judgment comes too late for many purposes. Life is too short, and time is too precious, to read every new book quite over, in order to find that it is not
not worth reading. It seems necessary, therefore, to have other indications, whereby to prevent our being at the charge of procuring, or the pains of perusing a worthless book. Divers rules of this kind are given by Baillet, Struvin, Stollius, and others; which, though in reality no more than presumptions, and frequently liable to be falsified, are not without their use. The journalists de Trevieres objected to them all: "The shortest way," say they, "to judge of a book is to read it, if you be qualified in the subject; other-wise to refer yourself to those who are." Heuman is somewhat more explicit: making it a mark that "a book is good, when it is esteemed by persons intelligent in the subject it treats of; and when those who commend it receive no advantage from the appliance they bestow on it, nor are leagued with the author in any cabal, for expounding any particular principle, system, or party, in religion or learning." Baillet, Jugen, des Squav. tom. i. b. ii. p. 121. Struiv. introd. ad Not. Rei liter. cap. 5. § 3. p. 350. Stoll. introd. Hist. Liter. p. i. s. 11. p. 9. Budd. de litteris boni libri, paffum. Mem. de Trev. an. 1712. Art. 17. Heuman. Comp. Rei. publ. liter. cap. vi. s. 11. p. 283.

But more particularly, it is an indication that a book is good: 1. If the author be known to excel in that talent more immediately necessary for such a subject; or have already published anything on the same that is esteemed. Thus we may conclude, that Julius Cesar will teach us the art of war better than Peter Ramus; Cato, Palladius, and Columella, agriculture better than Aristotle; and Cicero, oratory better than M. Varro; add, that it is not enough the author be skilled in the faculty, but that he be so in the particular branches of it, concerning which he treats; for instance, excel in the civil law, yet not in the public law; Salminius proved himself an excellent critic in his Exercit. Plinius, but was much inferior to Milton in his Defence Regia. 2. If the book be on a subject that requires great reading, it may be presumed good, if the author had a copious library, or could have access to one; or if he lived in a place where books were not wanting; though here is danger too of running into excess of quotations; especially, says Struivius, if the author be a lawyer. 3. A book which took up a long time in compounding, cannot often fail of being good. 4. Books on points of doctrine by edictive writers, are to be presumed better than those writ by the retainers to particular sects. 5. The age of a writer may also give us some indication: books, which require labour, are usually better performed by younger persons than those who are far advanced in years. 6. Another indication may be taken from the author's flate and condition; thus, history written by a person who was an eye-witness to what he relates, or is concerned in public affairs, or has access to the public records, or other monumens, from whence intelligence may be drawn; who is not biased by party, or any other indirect or sinister motive, will be suppos'd to be good. Thus Salluft and Cicero were well able to write the history of Catiline's conspiracy. D'Avila, de Comines, Guicciardino, Clarendon, &c. were present in the civil wars they describe; Xenophon, having an employment in the Spartan flate, has treated excellently of that commonwealth; and Amelot de la Houssaye, by living long at Venice, was enabled to explain the secrets of their policy. Camden wrote annals of the affairs of his own time; Thucylus had correspondence with the best writers in every country; and Puffendorf had access to the public archives. So, in literary matters, we give credit to those who have the direction of libraries. 7. The time or age wherein the author lived may give some light; every age having, according to Barley, its peculiar genius and excellency. See Bartholin. Struiv. Budd. Heuman. Baill. lib. cit.

Some judge by the bulk or size of books; following the grammarians Callimachus's rule, that every great book is of course an ill one, μεγαί βιβλιά, μεγαῖς καπνος; a single leaf of the Sybil was doublets preferable to the vail annals of Vohusis: yet Pliny's observations will not unnecessaries hold true, that "a good book is so much the better by how much it is bigger." Plin. Epist. 20. lib. i. Martial prescribes a remedy against the largeness of a book, when that is the only complaint, read but a little of it: "St animus video, feraque corone longus Elle liber, legitur paucis, libellus ero." Yet is the smallness of a book a real presumption in its favour: he must be a poor author, who cannot furnish a pamphlet, or loose sheet, with things curious, and written with spirit; but to support the fame through a volume in folio, requires very extraordinary abilities indeed. Addif. in Spec. N° 124.

There are some general mistakes, which persons are frequently guilty of in pellaging judgment on the books which they read. One is, when a treatise is written but tolerably well, we are ready to pronounce a favourable judgment of it, and sometimes to exalt its character far beyond its merit, if it agree with our own principles and support the opinions of our party. On the other hand, if the author be of different sentiments, and espouse contrary principles, we can find neither wit nor reason, good sense, nor good language in it. For avoiding or correcting this error, it should be considered, that books are never to be judged of merely by their subject, or the opinion they represent, but by the judgements of their sentiments, the beauty of their manner, the force of their expression, or the strength of reason, and the weight of just and proper argument, which appear in them. Another mistake, which some persons fall into, is this: When they read a treatise on any subject, with which they have but little acquaintance, they find almost every thing new and strange to them, their understandings are much gratified and improved by many things unknown to them before; and hence they are led to admire the treatise, and commend the author, whereas, if they had previously attained a considerable degree of skill in that science, perhaps they would have found that the author had written very indifferently, that neither his sense nor his method was just and proper, and that he delivered nothing that was not very common or very trivial, in his difcourses on that subject. On the other hand, if we have made ourselves masters of any particular theme of knowledge, and surveyed it long on all sides, there is scarcely any writer who much pleases us afterwards, because we find little or nothing new in him; and yet in a true judgment perhaps his sentiments are exceptionally just, his illustrations clear, and his reasonings forcible, and all the parts of the discours are well connected and fit in a happy light; but we knew most of these things before, and therefore they do not strike us, and we are in danger of discommoding them. There are some other follies into which persons are apt to be betrayed in forming their judgment of books. Some persons, who are of a forward and lively temper, and who are fond of intermeddling with all appearances of knowledge, will give their judgment of a book as soon as the title of it is mentioned; for they would not seem ignorant of any thing that others know; and especially, if they happen to have any superior character or possessions, they fancy they have a right to talk freely and to pronounce magisterially on every thing, even of a literary kind, that occurs. Thus, blind men will talk of the beauty.
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beauty of colours, and of the harmony or disproportion of figures in painting; the deaf will prize of discords in music; and those who have no pretensions to literature, will pronounce, with an unadorned presumption, on books of science; and those who have little or no acquaintance with either the speculative or practical principles of religion, will arraign the best treatises on divine subjects, though they do not understand the very language of the Scripture, nor the common terms or phrases used in Christianity. Judges of another description set themselves up to decide in favour of an author, or against him, according to the company they have kept, and the judgment pronounced concerning a book by others of their own stamp or size, though they have no knowledge or sense of the subject themselves. These, with a fluent and voluble tongue, become mere echoes of the praires or cenfures of other men. Others, again, pass judgment from the secret stimulations of vanity, pride, or envy; and in order to justify an unwarrentable and severe cen- Sure, they will alle: a mistake or two, which they have discovered, or a few sentiments and expressions not suited to their capricious taste and humour. It is, however, an indication of perverfeness and prejudice, to rail at any human performance because it is not absolutely perfect. Horace has given us a better example:—

"Sunt delicata tamen, quibus ignoville velimus: 
Nam neque chorda fonsam reddit, quem vult mansuets, et 
meus, 
PoeÜique gravem peripie remittit acutum; 
Nec femper seriem quodcumque minabitur arcus 
Verum, ubi plura intet in carne, non ego paucis 
Offendas maculis, quas aut incuria, aut 
Ant humana parum cavat natura."—De Art. Poet.

"Be not too rigidly censorious: 
A thing may jar in the best master's hand, 
And the most skilful archer mis his aim; 
So in a poem elegantly writ, 
I will not quarrel with a small mistake, 
Such as our nature's frailty may excuse." RoscUomom.

Another, and very frequent fault in passing judgment upon books, is this, that perions spread the false praires, or the fate reprecipitates, over a whole treatise, which are justly applicable only to some detached parts of it. After all, when any perion pretends to give his judgment of a book, we should consider whether he be a capable judge, or whether he may not lie under some unhappy bias or prejudice, for or against it, whether he has made a sufficient inquiry to enable him for forming a just opinion, Watts's Improvement of the Mind apud Works, vol. v. ch. 4-5.


The importation or sale of fable-books, or other populi books, is by flat. 3 Jac. li. c. 5. § 25. liable to a penalty of forty shillings.

The importation of books first printed in this kingdom, and reprinted abroad, is prohibited under a penalty of 5l, and double the value of every book imported and sold. Vide flat. 12 Geor. ii. c. 36. § 1.

There was a clause in the statute of the 8th of queen Anne, c. 10. empowering the chancellor, and some other great officers of state, to let the price of books; but this is now repealed by 12 Geo. ii. c. 36. § 2.

The sale right of printing books bequeathed to the two universities of England, the four universities of Scotland, and the colleges of Eton, Welfmouth, and Winchell, are secured to them by flat. 15 Geo. iii. c. 53. See Literary Property.

Books, burning of, was a kind of punishment functioned, both among the Greeks and Romans, by legal sentence. At Athens, the works of Protagoras were prohibited; and all the copies of them which could be collected, were burnt by the public erey. Diogenes Laert. i. ix. 52. At Rome, the writings of Numa, which had been found in his grave, were, by order of the senate, condemned to the fire, because they were contrary to the religion which he had introduced. Liv. i. xl. c. 29. Plin. xiii. 15. Platarch. in vit. Numae. As the populace of Rome were, in times of public calamity, more addicted to superition than deemed proper to the government, an order was issued that all superitions and antrological books should be delivered into the hands of the prator. This order was often repeated; and the emperor Augustus caused more than 20,000 of theses books to be burned at one time. Liv. i. xxv. c. 1. L. xxi. 16. Tacit. Annal. vi. 12. Sueton. l. lii. c. 31. Sometimes the care of the execution of the sentence for burning books, was committed to triumvirs appointed on purpose; sometimes to the prator; and sometimes to the auxilia. Labienus, who from his fatirical spirit some have called Rubeus, is said to have been the first who undertook the severity of it, under the emperor Augustus. His enemies procured a senatus-consultum, whereby all his books, published during several years, were ordered to be collected and burnt. The thing, says Senea, (in the introduction to the fifth, or as others reckon, the 10th book of his "Controversia:"?) then appeared new and strange to take revenge on learning! "Res nova et infalca, sapficia de studis fumi!" Callius Severus, a friend of Labienus, hearing the sen- tence pronounced, cried aloud, that they must burn him too, since he had got all the books by heart; "Nune me vivum uri oportet, qui illos edideri," Labienus could not survive his books; but flaming himself up in the tomb of his ancestors, pinned away, and was buried alive. It is related as somewhat singular, that a few years after, the writings of the perion, who had been the cause of the order for burning Labienus's books, shared the like fate, and were also publicly burned. In a manner some- what similar, the works of Ben-Arias Montanus, who affidated to make the first catalogue of prohibited books, in the No-
therlands, were afterward inserted in a catalogue of the fame kind. The repetition of Cæsars above cited gave occasion to a law of Augustus against abusive writings. Tacit. Annal. i. iv. c. 72. When Cremutius Cordus, in his History, called C. Cæsars the last of the Romans, the senate, in order to slatter Tiberius, caused the book to be burned; but a number of copies were concealed and preserved from the flames. Tacit. Annal. i. iv. c. 35. Antiochus Epiphanes caused the books of the Jews to be burned; and in the first centuries of our era, the books of the Christians were treated with equal severity, of which Arso- nius (Adv. Gentes, i. iii. & iv.) bitterly complains. Euse- bius informs us (Hist. Ecccl. i. viii. c. 2.), that Diocleian caused the sacred Scriptures to be burned. After the spreading of the Christian religion, the clergy exercised against books that were either unfavourable or disagreeable to them, the same severity which they had confined in the heathens as foolish and prejudicial to their own cause. Thus, were the writings of Arius condemned to the flames at the council of Nice; and Constan tine threatened with the punishment of death those who should conceal them. Socrates, l. i. i. c. 6. The clergy assembled at the council of Ephesus, requested the emperor Theodorus II. to cause the works of Nestorius to be burned, and their request was complied with. Cod. I. 1. tit. 5, 6. The writings of Eutyches shared the like fate at the council of Chalcedon; and the fame practice of burning books thought to be heretical with regard to religion, or injurious to the state in a political view, has been imitated in subsequent ages, and in various nations even of the Christian world.


Books, Privileges of. See Privelege.

Books, Whitening of. The following processes for whitening prints, printed books, and paper, has been announced and described by M. Chaptal. Simple immersion in oxygenated muriatic acid, for a longer or shorter space of time, according to the strength of the liquid, will suffice to whiten an engraving. But in whitening the paper of a bound book, it is necessary that all the leaves should be moistened by the acid, and therefore the book must be well opened, and the leaves separated; and the boards must be made to rest on the edge of the vessel containing the whitening liquor. This liquor in the process attains a yellow tint, and the paper becomes proportionably white. At the end of two or three hours, the book may be taken from the acid liquor and plunged into pure water; and the water should be renewed every hour to extract the remaining acid, and to disperse the disagreeable smell. In order to render this process more effectual, the book-binders destroy the binding, unfast the book, and separate its leaves; they then place these in cafes formed in a leaden tub, with very thin slips of wood or glafs, so that the leaves may lie flat and separate from one another at very small intervals. The acid is then gently poured into the tub, without disturbing the leaves. When the paper is become sufficiently white, the acid liquor is drawn off by a cock at the bottom of the tub; and its place is supplied by clear, fresh water. The leaves are then dried, and, after being proofed, re-bound. The leaves may with greater advantage be placed vertically in the tub. With this view, M. Chaptal confructed a wooden frame, adjusted to the proper heights, according to the size of the leaves proposed to be treated. This frame supported very thin slips of wood, at the distance from one another of half a line. In each of these intervals he placed two leaves, and kept them fixed in their place by two small wooden wedges, pushed in between the slips. When the paper was whitened, he lifted up the frame with the leaves, and plunged them into cold water, to take off the remaining acid, as well as the smell. By this operation books are not only cleansed, but the paper acquires a degree of whiteness superior to what it possessed when first made. This acid will also serve to destroy ink spots; but it has no action upon spots of oil, or animal greave; however, a weak solution of potash will effectually remove stains of that kind. To oxygenate the muriatic acid, it is only necessary to dilute it, and mix it in a very strong glafs vessel with managanese, in such a manner that the mixture may not occupy the whole content of the glafs. Air-bubbles are formed upon the surface of the liquors the empty space is filled with a greenish vapour; and, at the end of some hours, the acid may be further diluted with water, and then used. In order to remove spots of greave from books and prints, M. Deichamps, member of the Philosophical Society at Lyons, recommends to take out as much as possible of it by means of blotting paper; and then to dip a small brush in the essential oil of well rectified spirit of turpentine, heated almost to ebullition, and draw it gently over both sides of the paper, which must be carefully kept warm. This operation must be repeated as often as the quantity of greave imbibed by the paper, or the thickens of the paper, may render necessary. When the greave is entirely removed, the paper may be restored to its former whiteness, by dropping another brush in highly rectified spirit of wine, and drawing it, in like manner, over the place which was stained, and particularly round the edges, to remove the border that would fill prevent a stain. Bibliotheca Economica, vol. i. See Bleaching.

Books, common-place. See Common-Place.

Books, texts. See Text.

Books, is also used for a part or division of a volume, or large work.

In this sense we say the book of Genesis, the first book of Kings, the five books of Moses, &c. The Digist is contained in fifty books, the Code in twelve books.

Books are usually subdivided into chapters, sometimes into paragraphs, or paragraphs; accurate writers quote chapter and book.

Book is also used for a list or catalogue of persons' names.

—Such among the ancients were the centurial books, being tables or registers containing the names of all those who were confined or taxed under Augustus. Tertullian affers us, that our Saviour's name was found in the centurial book of Augustus, Adv. Marci. lib. iv. cap. 7. See Census.

Books, in Matters of Commerce, denote the several registers wherein merchants and other dealers keep their accounts. Hence to book, is to register in a book.

We say, such a person's books are in good order; merchants cannot possibly do without books; they are even obliged by the laws to keep books. But more or fewer are required, according to the nature or extent of their dealings, or the precision and exactness they desire therein.

The ancients had also their books of accounts; witnesses the codex accept & expend, is often mentioned in Roman writers; and the patrimonial books, which were rentals, containing an account of the lands, goods, and chattels, and other effects belonging to each person.

Among the defects to which the trial by jury is subject, one is the want of a compulsive power for the production of books and papers belonging to the parties. In the hands of third parties, they can generally be obtained by rule of court, or by adding a clause of requisition to the writ or "sumpagna," which is then called a "sumpagna duces toemis."
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But, in mercantile transactions especially, the sight of the party's own books is frequently decisive; as the day-book of a trader, when the transaction was recently entered, is really understood at the time; though subsequent events may tempt him to give it a different colour. And, as this evidence may finally be obtained, and produced on a trial at law, by the circuitous course of filing a bill in equity, the want of an original power for the same purposes in the courts of law is a material defect.

Book-binding, the art of sewing together the sheets of a book, and securing them with a back, and strong paste-board sides, covered with leather, &c.

Binding is distinguished from fitcheting, as in the latter the leaves are only sewed, without bands or backs. We say, French-binding, law-binding, marble-binding, binding in parchment, in sheep, in calves leather, &c. also half-binding, wherein the leaves are generally left uncut, and only the back covered with leather, the pasteboard sides being covered with marbled, or blue paper. Dutch-binding is where the backs are of vellum. The Italians are still contented to bind in a coarse, thick paper, called binding alla ruga, the inconvenience of which is its being liable to wear out without careful use. Without doubt, the art of binding is almost as ancient as the science of composing books; and both the one and the other followed immediately the first invention of letters. Whatever the matter might be, on which men first wrote, there was a necessity of uniting the several parts together; as well for the making of them of one piece, as for the better preserving them; hence the origin of book-binding.

According to Olympiodorus (apud Phot.) it was one Philatus, a learned man at Athens, who first taught the use of a kind of glue, to lessen the several leaves together; on which account a name was erected to him.

Books, the manner of binding in volumes, i.e. of gluing the leaves together; that of rolling them on round piece, or cylinders of wood, appears the most ancient; though that of binding them square, and of sewing several quires one over another, lays claim to considerable antiquity. The first of the two, which we call Egyptian binding, held a long time after the age of Augustus; but it is now diffused, excepting in the Jewish synagogues, where they continue to write the books of the law on vellum sewed together; making, as it were, only one long page, with two rollers and their claps of gold and silver, at each extremity.

The form now in use is the square-binding, which is said to have been invented by one of the Attal, kings of Pergamus, to whom we likewise owe the manner of preparing parchment, called in Latin, from the name of his capital, Pergama, or Charta Pergamana.

Books, manner of binding. The first operation is to fold the sheets according to the form, viz. into two leaves for folios, four for quartos, eight for octavos, &c. which the workmen do with a slip of ivory or box, called a folding-flick; in this they are directed by the catch-words and signatures, which are the letters with the numbers annexed to them, at the bottom of the pages. The leaves thus folded, and laid over each other in the order of the signatures, are beaten on a stone with a heavy hammer to make them fold and smooth, and then pressed. Being thus prepared, they are sewed in a sewing-press, upon pack-stretches or cords, which are called bands, at a proper distance from each other, and in a convenient number; which is done by drawing a thread through the middle of each sheet, and giving it a turn round each band, beginning with the first, and proceeding to the last. The common number of bands is fix in folios, and five in quartos, octavos, &c. Sometimes they use a law to make places for the bands, which are sunk into the paper, so that the back of the book, when bound, is smooth, without any appearance of bands. After this the backs are glued, the ends of the bands being opened, and ferved with a knife, for the more convenient fixing of the paste-boards; then the back is turned with a hammer, the book being fixed in a press between boards, called back-boards, in order to make a groove for admitting the paste-boards. The boards being then applied, holes are made for drawing the bands through, the superficial ends being cut off, and the parts hammered smooth. Then the book is prefixed in order for cutting; which is performed by a particular machine called a plough, to which is fixed a knife. After this the book is put into a press called the cutting-pre, betwixt two boards, the one laying even with the press, for the knife to run upon; the other above it, for the knife to cut against.

The book being cut, the paste-boards are squared with a proper pair of iron shears, and it is then ready for sprinkling, gilding, blacking, or marbling the leaves. The colours with which it is sprinkled, are usually vermillion, or caps; and it is done with a brush made with hog's bristles, rubbing the brush in one hand, and moving the hair with the other.

In the French-binding a book is put in parchment, i.e. a slip of parchment is applied over the back between each band, and the ends pasted on the inside of each paste-board. This preparation, called indorsing, seems peculiar to the French binders; who are enjoined by ordinance to back their books with parchment on the penalty of 30 livres, and the re-binding of the book; it is done in the press, where the back being grated to make the paste take hold, the parchment is applied; and they afterwards add glue to fortify it.

In 1799 a patent was granted to Mr. John Williams and Mr. Joseph Williams, stationers, London, for an improved method of binding all sorts of books. By the specification it appears, that this invention consists of a back, of a semicircular, semi-oval, or any other curved form; turned a little at the edges, made of iron, steel, copper, brass, tin, or any other metal, ivory, bone, wood, vellum, paper, leather, or any material capable of retaining a firm situation. This back, being put on the book before bound, so as to cover but not to press the edges of the paper, will, when the book is opened, prevent its spreading on either side, and cause it to lie in any part which is opened to nearly a level surface. This firm back, turned at the edges, so as to cause all sorts of books to open freely, is the object of this patent.

The method of binding, practised by the inventors, is as follows: they forward the paper in the usual manner; few on vellum slips, glue, cut, clothes, and board, or half-board; and put on the firm back by fastening it at the sides, through holes, by vellum, or securing it by inclosing it in vellum or ferret wrappers, or other matters, padded down upon, or drawn through the boards. Mr. Ebenezer Palmer, stationer of London, obtained a patent in 1800 for an improvement in the mode of binding books, particularly account books of merchants. This confits in the addition of a certain metallic chain, which is made or applied in the following manner: firll, provide several small bars of metal, about the thickness of a shilling, or more, according to the size and thickness of the book; the length of each bar being from half an inch to several inches long, in proportion to the strength required in the back of the book. At each end of every bar is made a pivot of different lengths, in proportion to the thicknesses of two links, which they are to receive. Each link is made in an oval form, and contains two holes, proportioned
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portioned to the sizes of the pivots; and these links are of the same metal as the hinge; each of them being nearly equal in length to the width of two bars. The links are then riveted on the pivots, each pivot receiving two of them, and thus holding the hinge together, on the principle of a link-chain or hinge. There are further two holes or more of different sizes, as required in each bar of the hinge or chain, by means of which each section of the book is strongly fastened to the same; which hinge, so fastened, operates with the back of the book, when bound, in such manner as to occasion the several sections to open so as to bring them on a parallel with each other, and consequentially admit the ruled lines being written into, without any inconvenience, close to the back.

Manner of gilding books on the edges: The book, being put tight into the press, between two boards, is scraped with a knife called a scraper; and after that with another called a smoother, in order to take out all scratches. Being thus made smooth, they scrape a little yellow ochre upon the book, wet it with a little fixe-water, and rub it off with some clean shavings. The gilding-fixe is made with the white of an egg, mixed with water, and beat well together. The leaves being wetted with the fize-water, with a brush, the gold is then laid upon it, and afterwards dried before the fire. When dried, it is burnished off with a dog's tooth set in a handle. See GILDING ON PAPER, &c. Blacking the leaves is done with fine antimony, the leaves being wet, and the antimony rubbed upon them until quite dry, when it is burnished like the gold.

The head-band is now added, which is an ornament of thread or silk, of two or three colours, placed at each extreme of the book, acrost the leaves, and woven or twilled, sometimes about a fingle, and sometimes a double piece of rolled paper, or, what is more lasting, of glued paper-thread.

For the covers; the skins used undergo several preparations, which we shall explain in full, as being the leather most used; and as being that to which all the rest with a little variation may be referred. The calf-skin, being moistened in water, is cut to the size of the book, and the thickness of the edges pared off on a marble stone kept for that purpose. The cover is next smeared over with paste, made of wheat-flour; then fretched over the paste-board on the out-side, and doubled over the edges within. They then cord the book, or bind it firmly between two boards, to make the cover stick the stronger to the paste-boards and the back; on the exact performance of which depends a great part of the truth and neatness of the book. The back is then warmed at the fire to soften the glue, and the leather of the back is rubbed down, with a folding-flick or bodkin, to set and fix it close to the back of the book. It is now set to dry, and when dry, uncorded; the book is then washed over with a little paste and water, the edges and figures blushed with ink, and then sprinkled fine with a brush, by striking it against the hand, or a fick; or with larger spots mixed with vitriol, which is called marbling. Two blank leaves, on each side, are then to be pasted down to the cover, and, when dry, the leaves are burnished in the press, and the cover rolled on the edges.

The cover is now glazed twice with the white of an egg; it is then filleted plain, or with gold; and at last polished with a polishing iron, passed hot over the glazed colour. If the book be required to be lettered, they paste a piece of red Morocco on the back, between the first and second band to receive the title in gold letters; and sometimes a second between the next bands underneath, to receive the number of the volume.

The plain binding, properly so called, is now complete; the gilding on the back and cover, as it makes a part of the book-binder's business among us (though, with the French, &c. it is a distinct profession), we shall here subjoin.

Manner of gilding books on the back and covers. In ordinary binding, they gild little else but the backs, and the outward edges of the cover. On the backs are gilt the title of the book, &c. with flowers, roses, knots, flars, &c. between the bands: on the covers are sometimes added compartments, arms, &c. All these ornaments are made with each its several gilding tool, engraved in relieves; either on the points of puncheons, as those of letters, roses, flars, &c. or around little cyllinders of brars, as the lines, embroideries, &c. The puncheons make their impression, by being pressed flat down; and the cylinders by being rolled along by a handle, to which they are fitted on an iron fay, or axis.

To apply the gold, they glaze those parts of the leather, wherein the tools are to be applied, three or four times with a liquor made of the whites of eggs diluted with water by means of a sponge; and, when nearly dry, they slightly oil them, and then lay on pieces of leaf-gold, and on these apply the tools, with a careful even pressure of the hand, or roll the cyllinders, both the one and the other, reasonably hot. If the figures be large, and require a great relieve, as arms, &c. they are beat or pressed down. The gilding thus finished, they rub off the superfluous gold, and polish the whole; the gloss of which is greatly sufficed by a final pressing between horns peculiar for the purpose.

Our book-binders, for gilding on rough leather, make use of resin dried and powdered, instead of whites of eggs; and the gold leaf, first cut to a proper size, is laid on a fhot somewhat oiled flat, and pressed down; and thus the resin melts only in those parts where the hot am in applied, and the gold fixes on it, while the other parts of the leather remain rough as at first. Dr. Lewis's Com. Phil. Tech. p. 615. See GILDING.

Aha! Fritsch, chancellor of the university of Jena, has a dissertation expres concerning book-binders, De Bibliopogia; wherein he treats of the laws prescribed by these artificers, and the tax or price settled by the magistrates for binding books, of every sort in sheep-skin, vellum, &c.

END OF VOL. IV.

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